Permit Application For

PAYSON CITY CORPORATION MUNICIPAL SOLID WASTE LANDFILL (CLASS V) UTAH COUNTY

Payson City Corporation
Payson City Engineering

December, 02

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UTAH DEPARTMNET OF ENVIRONMENTAL QUALITY

DIVISION OF SOLID AND HAZARDOUS WASTE

Permit Application for a Class V Landfill

Submitted to:
Dennis R. Downs, Director
Division of Solid and Hazardous Waste
Utah Department of Environmental Quality
PO Box 144880
Salt Lake City, Utah 84114-4880

1. PART I - GENERAL DATA

1. Name of Facility: Payson City Class V Landfill
2. Site Location: 6220 West 10400 South, Payson, UT 84651
3. Facility Owner: Payson City Corporation
4. Facility Operator: Kent Fowden, Solid Waste Superintendent
5. Contact Person: Glade J. Robbins/Kent Fowden
   439 West Utah Avenue
   Payson, UT 84651
   Telephone: 801-465-5235
   Fax: 801-465-5208
6. Type of Facility:
   ( ) Class I Landfill (X) Initial Application
   (X) Class V Landfill ( ) Permit Renewal
   Original Permit Number _____
7. Property Ownership
   (X)Presently owned by applicant
   ( ) To be purchased by applicant
   ( ) To be leased by applicant
   Property owner (if different from applicant)
   Name Same as applicant
   Address _____
   _____
   Telephone _____
8. Certification of submitted information.
   Andy Hall , City Manager
   (Name of Official) (Title)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of

the person or persons who manage the system, or those person directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:_____ Date:_____
SUBSCRIBED AND SWORN to before

This _____ day of _____, 19_____.

My commission expires on the _____ day of _____, 19_____.

_____
Notary Public in and for

(SEAL) _____ County, Utah.

2. PART II - GENERAL REPORT

2.1. General Description -

This application is for a Class V landfill facility for the disposal of municipal wastes. The landfill is owned and operated by Payson City Corporation, Payson Utah. The landfill is currently in use by Payson City and has been since the purchase of 120 acres at the current landfill site in 1951. The landfill is located in the foothills on the west side of the valley, approximately 2.5 miles west of Payson City.

The landfill occupies approximately 30 acres on a 170-acre site that is owned by Payson City. The landfill property is bounded on the east by the Strawberry Highline Canal and on the west by Bureau of Land Management property and on the north and south by private landholders.

The landfill accepts wastes that are generated from Payson City residences and are collected by the City. Wastes generated from Commercial and Industrial accounts within the city are deposited at the landfill as well. The landfill is also used by citizens in the unincorporated areas of the southern portion of Utah County.

Non-residents of Payson City are charged by the ton for wastes deposited at the landfill. Payson City residents can obtain a dump card that allows them to deliver loads of waste to the landfill and dump free-of-charge.

During May of 1995, construction was completed on the class IV landfill located to the south of the municipal landfill on Payson City property. Since that time, construction and demolition waste has been diverted from the Class V landfill and into the class IV landfill. Annual report data has shown that utilization of the class IV landfill has reduced the waste stream quantities delivered to the class V landfill by 65 percent.

2.2. Relationship To County Solid Waste Management Plan

The Payson City landfill complies with the *Utah County Solid Waste Management Plan*. The County's plan, dated May 17, 1993, page 105 states, " The Payson City landfill will continue to operate for 50 years". It is the intent of the City to manage and operate the landfill in accordance with current regulations. This will provide an expedient location for the South Utah County Cities to deposit solid waste as long as conditions allow.

2.3. Legal Description -

The landfill is located on property owned by Payson City Corporation. The property is located in north 1/2 of the north east 1/4 section of section 15, township 9 South, Range 1 East, Salt Lake Base and Meridian. Also a portion of the northwest 1/4 section of section 14. Please refer to the drawing in Appendix A for a detailed description of the property. Deeds obtained from the County Recorder's office at Utah County indicated ownership of the property is with Payson City. (Copies of those deeds are also included in appendix A.)

2.4. Plan of Operation -

2.4.1. Schedule of Construction

The Payson City Class V landfill is an existing landfill. As discussed in paragraph 1, Payson City has owned the landfill property since 1951. The current regulations allow for filling the existing footprint only. Any lateral expansion is not allowed without application and approval of the Division of Solid and Hazardous Waste.

2.4.1.1. Method

The landfill utilizes a "canyon fill" method with waste being deposited at the base of the lift and then pushed and compacted up the face of the lift by the bulldozer. The deposited waste is then covered with at least six inches of soil taken from the area on the up-hill side of the working face. This procedure is repeated until the level of the lift reaches 10 to 12 feet. A new lift is then started and the procedure repeated until the lift is full. Further discussion and drawings on the landfill plan is included in the technical data section of this application.

2.4.2. Solid Waste Handling Procedures

2.4.2.1. Hours of Operation

Summer : 1 April through 31 October
Monday through Saturday, 8:00 am to 7:00 p.m.

Winter: 1 November through 31 March
Monday through Saturday, 8:00 am to 5:00 p.m.

The landfill is closed on holidays.

2.4.2.2. Staff

Four Payson City full-time employees; two scalehouse operators and two bulldozer operators operate the landfill. One additional part-time employee is hired to help during the summer. The scale building operator is responsible for weighing the loads of waste received and logging it into the register. The bulldozer operator manages the waste area using the bulldozer to compact and cover the waste.

2.4.2.3. Daily Mode of Operation

Daily mode of operation is as follows: Operators arrive at the landfill site by 7:50 am and unlock the entrance gate. The scale building operator will unlock the scale house and ensure that the scales are operating correctly. He will then log each load into the register and weigh it. After the trucks have been weighed and all information logged in the register, the operator directs the truck driver to the location of the working face where the waste is dumped.

2.4.2.4. Pre-operation Maintenance Check

The bulldozer operator performs a pre-operation maintenance check on the bulldozer before starting it. (See checklist in appendix C page C-1.) Once the checklist is completed, the bulldozer is started and taken to the waste dump area of the current cell. Waste will be dumped at the working face of the cell area by each truck entering the landfill. The bulldozer operator will work from the base of the deposited waste and spread and compact the waste up the working face as much as possible. This process will continue throughout the day until the gate is closed at night. After the last load of the day has been received, the operator will finish compacting and then cover the deposited waste with a minimum of 6 inches of soil. Soil will be taken from the area on the uphill side of the working face and spread over the deposited waste.

2.4.2.5. Asbestos Disposal

The landfill has a permitted disposal area for asbestos waste that is generated by an automobile brake manufacturer located in Payson. These wastes are disposed of when scheduled by the manufacturer. When needed, the manufacturer will notify and arrange a delivery time that the wastes will arrive at the landfill. After the notification, the bulldozer operator will prepare the disposal area for deposit of the wastes, ensuring that adequate cover materials are available. The asbestos waste is shipped in sealed 55-gallon drums to the landfill. Upon arrival at the landfill, the load is weighed and the barrels are counted. The weight and barrel count information is written on the waste shipment record (WSR), and the landfill operator and the truck driver sign the record. The barrels are then placed in the designated cell and immediately covered with 6 inches of soil. The waste shipment records are filed for future reference.

2.4.2.6. Recycled Wood Products

A commercial account delivers sawdust and scrap wood that are recycled at the landfill. When these loads arrive at the landfill, they are weighed and directed to unload at an area near the scalehouse. The sawdust is dumped in a soil bunker and the scrap wood is dumped near the bunker where salvage activities can take place.

2.4.3. Inspection Schedule

2.4.3.1. Groundwater Monitoring

A total of six (6) groundwater monitoring wells have been installed at landfill. Water levels in the wells indicate that the underground water gradient is very flat. However, it appears that the ground water flows from the south to the north. With this information, it has been determined that MW-4 is the upgradient well and wells MW-5 and MW-6 are down gradient. The City is currently under contract with a consultant to develop a sampling and analysis plan. In addition, the consultant will determine a schedule for sampling for the first year. This plan will be submitted to the Division of Solid Waster for review and approval.

After the initial round of sampling, subsequent sampling of the ground water wells will occur on a semiannual basis as a minimum, with samples taken during April and October of each year. The samples will be taken by the landfill operators or a consultant and sent to an approved lab for analysis. Results of the analysis will be kept in the operating log of the landfill. (See ground water monitoring log in Appendix C, page C-2)

2.4.3.2. Methane Monitoring

Samples will be taken using a hand held gas monitor on a quarterly basis, with the sampling schedule being the first business day nearest 1 January, 1 April, 1 July, and 1 October of each year. (See appendix C, page C-3, for methane sampling log sheet.) Measurements of methane levels are taken in the field with a portable methane meter. If monitoring results indicate that more frequent monitoring is needed, the frequency of sampling will be increased.

2.4.3.3. Inspections

Periodic self-inspection of the landfill will be conducted at least once a month. These inspections will be used to determine if operations at the landfill are conducted as planned and also to determine the condition of the various areas of the landfill to see if any maintenance is required. A sample inspection log sheet is located in appendix C, page C-4.

2.4.4. Operating Records

Accurate records are kept and used to document all transactions and activities at the landfill. These records are kept at the landfill site in the scale house, with a duplicate copy made and kept at the City offices.

2.4.4.1. Forms

A set of the forms used to compile the records of the landfill is contained in Appendix C. The following forms are used for record keeping purposes:

2.4.5. Ground Water Response Plan

Specific response to groundwater contamination will be determined once a sampling and analysis plan has been developed.

2.4.6. Contingency Plans

2.4.6.1. Fire

Comprehensive measures are taken at the landfill to prevent fires from starting. Firebreaks are constructed and maintained around the perimeter of the landfill to prevent an outside fire from spreading into the landfill. The working face of the landfill is kept small to prohibit a large amount of combustible materials being available to burn.

Fires that have occurred in the past have been a result of hot ashes placed in the waste and combustion has occurred. These fires will be extinguished by the bulldozer operator by separating the burning waste from the working face and then spreading it out and/or covering it with soil.

In the event that a fire should occur at the landfill that cannot be extinguished by the bulldozer operator, the Payson City fire department would be notified by the use of the telephone that is located in the scalehouse. Once the fire department has been notified, the operators will assess the extent of the fire. If the fire endangers those who are present in the landfill depositing waste, they will be directed to cease any operation and exit the landfill in an orderly manner. If the fire is small and doesn't present a risk to those in the landfill, they will be allowed to finish unloading the waste and then leave the landfill. If the operators feel that it is safe to continue operations at the landfill during the fire, incoming loads will be directed to another cell away from the fire to deposit the waste.

The fire department will respond and assess the fire and extinguish it with proper methods. Depending on the assessment of the trained fire officials, proper protective clothing, including respiratory protection will be used. Due to landfilling procedures used, it is felt that all fires that would occur at the landfill can be extinguished by the Payson City fire department.

2.4.6.2. Explosions

The methane gas monitoring system will be used to analyze the amount of methane concentrations to help prevent explosions from methane gas. In the unlikely event of an explosion from unknown wastes, response will be handled similarly to the fires listed above.

2.4.6.3. Release of Explosive Gases

It is unlikely that explosive gases would be encountered at the landfill. In the event that they did occur, contingency procedures similar to those used for a fire would be followed.

2.4.6.4. Failure of a Run-off Containment System

Recent work has been completed to ensure that adequate run-off collection and storage systems are installed at the landfill as of fall 1993. The collection ditches and storage basin were oversized and constructed so that they are basically fail-proof. The run-off system is inspected after each major storm and maintenance of the system is completed at that time if required.

The potential run-on from the west is currently diverted by roadside drainage ditches along a private road on the west side of the property. These triangular shaped drainage ditches average about 6 feet wide and 3 feet deep. The capacities of the roadside ditches are 39 cfs each. At the design runoff, the velocity would be about 4 fps (See Appendix H for the Details and Calculations). The ditches are more than adequately sized to handle the runoff flows. The ditches are constructed in graded silt to cobble soils, which have a recommend 5-fps maximum velocity to prevent scour. Therefore additional erosion control measures will not be need in these ditches.

The calculated peak runoff from the largest 2-acre landfill slopes is 1.3 cfs for the 24 hour 25 year event. The capacity of the runoff ditches is 4.2 cfs each (See Appendix H for the Details and Calculations). At the design runoff, the velocity would be about 3.3 fps. The ditches are more than adequately sized to handle the runoff flows. The ditches will be constructed native soils capped with topsoil, which has a recommend 2.5-fps maximum velocity to prevent scour. Therefore erosion control measures will be need in these ditches. Coconut erosion control blankets will be placed in the runoff ditches.

The runoff control ditches on the perimeter of the landfill will serve the dual functions as runoff control and fire breaks. In area where the slope is great enough to cause scour concerns, the ditches will constructed with a terracing effect and rip-rap placed to create rock dams at selected intervals that will reduce the velocity of the runoff water and any potential for scour. On the interior of the landfill, the runoff ditches will be lined with the coconut erosion control blankets to prevent scour as discussed previously.

2.4.7. Alternative waste handling

It is anticipated that the only equipment items that have the potential to breakdown and cause the landfill to be inoperable would be the bulldozer and the scales. When the bulldozer fails, a rental unit will be obtained for use until the City's bulldozer can be repaired. A replacement bulldozer can be obtained within a day. The landfill has dual set of scales (one set for incoming and one set for exiting). If one scale became inoperable, the second set could be used. If both scales become inoperable, loads of waste will be required to present a weigh bill from a commercial scale in the area before being allowed to dump at the landfill. It is expected that the maximum time the scale would be down would not exceed one week.

2.4.8. Equipment Maintenance

Landfill equipment will be maintained in accordance with vendor recommendations for the commercially procured items. The landfill site and installed

systems will be maintained in conformity with good landfill practice. All maintenance performed at the landfill will be logged on the landfill maintenance log sheet (see appendix C, page C-5).

2.4.9. Vector Control

The daily compacting and soil cover of the deposited waste will control disease vectors. Keeping the open working face small and thoroughly compacting and covering the waste with soil at the end of each day has been effective in preventing disease vectors from becoming a problem at the landfill.

2.4.10. Exclusion of Hazardous Wastes

Payson City has established strict acceptance standards for non-hazardous solid waste streams. The landfill employees will supervise the unloading of all waste into the cell. Random inspections for hazardous waste, bulk liquids, used oil, automotive batteries, and any other prohibited waste will be conducted on approximately 10% of the loads. Any inspection form is completed for each inspection. (See inspection form in Appendix C, Page C-9)

2.4.10.1. Acceptance of Regulated Hazardous Waste

The landfill will not accept regulated hazardous waste, including PCB wastes. Wastes that are prohibited from being deposited at the landfill include the following:

A. Listed wastes (Subpart C, 40 CFR part 261)
B. Exhibits Hazardous Characteristics (Subpart C, 40 CFR Part 261)
C. A mixture containing a "listed" waste.
D. Wastes containing PCBs.

2.4.11. General Training Plan

Each landfill operator will receive the necessary training and safety orientation before being permitted to work in the landfill. Local seminars that are provided by SWANA will be used for the majority of the training. Bi-monthly supervisor and operator safety meetings will be held to keep safety issues current. These meetings also allow for an exchange of information between the landfill operators and management.

2.4.12. Recycling Programs

The Payson City landfill has four recycling programs that are currently being utilized. They are the sawdust sales, scrap wood salvage, white goods, and tires. Further details of how the programs are managed are listed below.

2.4.13. Sawdust Sales

A commercial account that provides refuse service to a business that constructs display cases of wood provides approximately 10 tons of sawdust per week to the landfill. This sawdust is collected in the business's dust collection system and is free from contaminants and foreign materials. The amount delivered each week varies depending on the workload of the manufacturer. This sawdust is dumped at the landfill in a waste-

free soil bunker located south of the scalehouse. The sawdust in then loaded and sold on a per ton basis to livestock owners and dairymen for use as animal bedding.

2.4.14. Scrap Wood Salvage

The same industrial account that manufactures the display cases described above, also deposits scrap wood at the landfill. The wood is comprised of the trim pieces from the wood used in the display cases. The wood is comprised of hardwoods, pressed wood, and plywood. Although this wood is unusable at the manufacturer, it can be used at home woodworking shops or for fuel in wood-burning stoves and fireplaces. The loads of scrap wood are dumped at the landfill near the sawdust bunker. This allows the salvaging to be done away from the dumping and compaction operations at the working face.

Citizen demand for this scrap wood is very high. In an effort to provide an equal opportunity and organized method for the salvaging of this material, the City Council passed a resolution that a permit is required for salvage privileges. Each year wood salvage permits are available to those who apply and are successful in a random drawing held at the second City Council Meeting in January of each year.

Residents who are successful in drawing a wood permit are allowed to salvage wood from the landfill. The permit is for a specified day of the week (i.e., Monday through Saturday.) Permits holders can enter the landfill on their assigned day of the week and sort through the wood scraps that have been deposited and remove what ever pieces they feel are of value. There is no limit to the amount of wood each permit holder can take. Past experience has shown that the permit holders will remove the majority of the wood deposited at the landfill. This wood recycling system has been in use for the past several years and has worked well. Continuation of the system will be contingent on the demand for, and supply of the scrap wood.

2.4.15. White Goods

If residents bring white goods to the landfill, the scale house operator notifies them that these items are not accepted at the landfill and can be sold a metal salvage operation. If white goods are passed undetected at the scalehouse, they will be separated at the working face of the landfill and segregated for later pickup by a metal salvager.

2.4.16. Tires

Waste tires collected at the landfill are segregated and placed in a collection area for future pickup. The program that is coordinated by the Division of Solid and Hazardous Waste is used to remove the tires from the landfill.

2.5. Financial Assurance Plan

2.5.1. Cost Estimates for Closure and Post-closure Care

2.5.1.1. Closure Cost Estimate

Payson City has budgeted money for the final closure of the landfill. Payson City is a municipality and will remain solvent and therefore will be capable of

providing the closure and post-closure care of the landfill. The estimated cost for closure is $550,675. This amount is based on the largest area that would require cover at closure, approximately 32 acres. Closure will include an 18-inch layer of a clay material with a hydraulic conductivity of 1 X 10-7 cm/sec or less, covered by a twenty-four-inch soil layer and a six-inch layer of top soil (for a total of 30 inches on top of the clay). The final fill profile will be constructed on a 3:1 slope. Once the clay layer and topsoil are in place, the topsoil will be seeded with a range grass mixture that is indigenous to the area. The cover surface of the landfill will be graded in such a manner as to prevent runoff from eroding the topsoil cover (See Appendix H Dwg. No. P-LF-EC. Costs associated with final closure are as follows:

Description	Cost
Place and compact clay material	$193,600
Place and spread top soil	$280,075
Provide erosion control	$38,000
Fertilize and seed with grass	$32,000
Certification by registered engineer	$7,000
Total Cost	$550,675

2.5.1.2. Post closure cost estimate

Once the final cover has been placed on the landfill, periodic groundwater and methane gas samples will be taken. These samples will be taken on a semiannual basis, unless test results indicate a need for more frequent sampling. The costs for post-closure will be those associated with the maintenance of the run on/off systems, ground water and methane monitoring, and final cover stabilization, including residual settlement repair, erosion control or re-seeding. Yearly costs for these activities are estimated to be as follows:

Description	Cost
1. Ground water monitoring	$5,000.00
2. Methane monitoring	$2,000.00
3. Run on/off system	$6,000.00
4. Final cover stabilization	$8,000.00
Total Annual Cost:	$21,000.00

2.6. Financial Assurance Mechanism

Payson City Corporation currently meets the Local Government Financial Test requirements of R315-309-3(7).

2.7. Closure Plan

2.7.1. Final Cover

The final cover for the landfill will be an 18" layer of clay material with a hydraulic permeability of less than 1 X 10-7 cm/sec. The clay material is being excavated

from the Class 4 landfill cell and stockpiled for use as closure of the Class V landfill takes place. Samples of the clay have been analyzed at the laboratory and results indicate that permeability is less than 1 X 10-7. A 30" thick layer of soil with the upper portion of that layer being topsoil that will be suitable to sustain low growing grasses will cover the clay material. Topsoil that was removed when the cell was opened has been stockpiled and will be used. After the clay layer and topsoil layer have been placed over the waste, the soil will be fertilized and seeded with range grasses that are indigenous to the area. Runoff collection ditches will be strategically placed to prevent erosion of the final cover.

2.7.2. Capacity of Site in Volume and Tonnage

The current landfill cell has a capacity of 2,201,600 cubic yards of waste, or 770,560 tons, (calculated at 700 lbs. of waste per cubic yard).

Listed below are the capacities of the landfill at each 10' elevation.

Elevation	Tons	Elevation	Tons
4800	1,505	4910	46,655
4810	20,210	4920	37,840
4820	27,735	4930	32,035
4830	35,690	4940	26,445
4840	50,955	4950	19,780
4850	70,305	4960	14,620
4860	76,970	4970	11,395
4870	78,260	4980	7,955
4880	75,680	4990	7,095
4890	66,220	5000	4,730
4900	55,255	5010	3,225

2.7.3. Projection of Time Intervals when Closure Will Occur

Closure will occur as each 10' elevation is filled. The clay material and soil will be placed and the grasses seeded. Projections for the amount of waste to be received at the landfill is based on the population projections that have been determined by the Governors Office of Planning and Budget, 1994. This report indicates that projected growth rates for Payson City will be approximately 2.03% per year for the period 1990-2020. Estimates for wastes generated were based on actual waste received in 1998 and increasing that amount by 2.03 percent each year thereafter. With the opening of the Payson City Class 4 Landfill in June of 1995, waste received into the Class V Landfill has been reduced by nearly 65%. A chart indicating the amount of cumulative waste received at the landfill is included in appendix D. The chart shows waste received at the projected growth of 2.03% and a growth rate of 10%. (City personnel believe the 10% growth rate is more accurate.)

The estimated time of closure is based on the filling of each 10' elevation. Based on the higher rates discussed above, closure at the various levels would occur according to the following schedule:

Elevation	Year of closure	Elevation	Year of closure
4800	2004	4890	2060

4810	2006	4900	2064
4820	2009	4910	2067
4830	2015	4920	2070
4840	2024	4930	2071
4850	2033	4940	2072
4860	2041	4950	2074
4870	2050	4960 to	2078
4880	2055	5010	

2.7.4. Closure Cost Estimates

Closures cost estimates for the landfill have been based on using the clay materials and topsoil that are at the site for closure. The cost of closure will be for placing and spreading the materials. Currently there is 4000 tons of stockpiled clay soil and 4050 tons of stocked piled topsoil on-site. We are of the opinion that there is a sufficient supply of cover soil on-site and that there is no need to import/export soil to/from the sites. The inventorying of the stockpile quantities will be included as part of the quarterly inspections.

We estimate needing:

34 acre x 18 inches clay = 83,000 cubic yards clay
34 acre x 24 inches soil = 110,000 cubic yards soil
34 acre x 6 inches topsoil = 27,000 cubic yards topsoil

Clay material that is being excavated at the Class 4 landfill will be used for the cover layer of the Class V landfill. Samples have been taken and permeability has been analyzed. Hydraulic conductivity of the clay material is less than 1 X 10-7 cm/sec. This clay material will be placed to a depth of 18 inches. Approximately 83,000 cubic yards of the clay material will be required for closure. Estimated cost for placing the clay material is 83,000 yds. X $2.50/yd= $207,500.

After the clay material has been placed, it will be covered with a 30-inch layer of soil with the top 6 inches being top soil. Topsoil that has been stockpiled on site from when the cell was initially opened will be used for this cover. Approximately 137,000 cubic yards of soil will be required. Estimated cost for placing the topsoil layer is 137,000 yds X $2.50/yd= $342,500.

With the concurrent operations at the Class VI C&D Landfill, we will be able to generate the materials need for the cover. The C&D landfill is a cut/fill terracing operation which generates large quantities of cut material that can then be used as cover material for both landfills. The average soil profile for the C&D site consists of 1-2 feet of Topsoil underlain by 5-10 feet of clay over sandy gravel and rock. The 5 cells will produce approximately 500,000 cubic yards of soil cover material, 200,000 cubic yards of clay material and 40,000 cubic yards of topsoil. The C&D Landfill will require about 83,000 cubic yards of cover soil and 20,000 cubic yards of topsoil. Additional topsoil if needed will be scalped off the adjoining 18 acres to the south of the land which is set aside at this time for future expansion of the Class VI landfill.

Grading of the cover layer and installation of strategically located storm water collection ditches will be provided to prevent erosion. The ditches will be coconut mat

lined to prevent washout and damage. Estimated cost for erosion control is 32 acres X $1,187.50/acre= $38,000.

At the completion of all earthwork and installation of erosion control measures, the topsoil will be fertilized and seeded with range grasses that are indigenous to the area. Estimated cost for this work is 32 acres X $1000.00/acre= $32,000.

2.7.4.1. Closure Inspections

Closure activities will be inspected and certified by a third-party engineer, who is licensed to practice in the State of Utah. Estimated cost: Closure certification - $7,000.

2.7.4.2. Final Inspection by Regulatory Agencies

At least 60 days prior to implementing the closure plan, Payson City will notify the Executive Secretary of the Division of Solid and Hazardous Waste that closure activities will begin. Once final closure has taken place, the Executive Secretary will be notified and regulatory personnel can inspect the landfill and verify proper closure.

2.8. Post Closure Plan

2.8.1. Groundwater Monitoring

Groundwater monitoring at the landfill will be continued through the post-closure period until conditions are such that it is no longer needed. Sampling of the one upgradient and two down gradient wells will be done on a semiannual basis with samples being taken near the 1st of April and October of each year. Sample results will be filed in the operating log and analyzed for significant changes since the previous samples were taken.

2.8.2. Gas Monitoring

Quarterly explosive gas monitoring at the landfill will be conducted in accordance with R315-303-3(5)(a) UAC. The sample results will be kept in the operating log.

2.8.3. Maintenance

Closure of the landfill will be completed so that additional maintenance during the post-closure period will be kept to a minimum. The ground water and gas monitoring systems will be maintained to enable satisfactory samples to be taken and analyzed. The scalehouse facility will most likely be utilized for a new cell that will be developed to the west of the current landfill site.

2.8.4. Final Cover

The final cover and run-on/off systems will receive any needed maintenance twice yearly or more frequently if required. Any settlement in the final cover will be filled and

the area re-seeded with grass. The run-on/off systems will be cleaned of any debris or materials that would prevent them from functioning as designed. Repairs that may be needed due to erosion will be completed. Scheduled maintenance will occur semiannually, during the first week of April and October of each year.

2.8.5. Time Intervals For Post Closure Activities

The majority of the post-closure care of the landfill will be completed twice yearly. Scheduled maintenance will take place during the first week in April and October of each year. Ground water and gas samples will be taken and the final cover and run-on/off systems will be inspected and maintained. Periodic inspections of the landfill will take place monthly, and the run-on/off system will be inspected after each major storm to ensure that it is working properly and is in good repair.

2.8.6. Changes to Title

Notification will be made by the City to the Division of Solid and Hazardous Wastes of any changes to record of title, land use, and zoning restrictions of the landfill site.

2.8.7. Post closure care cost estimates

It is estimated that the cost of post-closure care of the landfill will be approximately $21,000 per year. Funds will be withdrawn from the Utah Public Treasurer's Trust Fund as needed to cover these costs.

2.9. Class V Landfill Market Information

2.9.1. Proven Market

Evidence that the commercial facility has a proven market of non-hazardous solid waste.

A. Payson Landfill provides a disposal area for the commercial waste haulers in the Southern Utah County area as well as the municipal waste collected within Payson City. The other disposal areas nearest to the city are the transfer stations located at Springville and Goshen. Commercial wastes deposited at the Payson Landfill average approximately 4,000 tons per year. Tipping fees for commercial waste is $32.00 per ton. Municipal wastes collected by the City average approximately 6000 tons per year. Asbestos wastes collected from Rayloc industries amount to approximately 62 tons per year. Asbestos wastes tipping fees are $100.00 per ton.
B. As stated above, the Payson Landfill is used for waste disposal for the south Utah County area and does not compete for regional or out-of-state business.
C. There are no other commercial waste facilities located directly in the Payson area.

2.9.2. Public Benefits

Description of the public benefits of the facility:

A. The Payson City Landfill provides a much-needed service for the residents of Payson City and the residents of the surrounding rural areas. Without the Payson City landfill, waste would have to be taken to either Springville or Goshen.

B. There are no known energy or other resources recoverable by the proposed facility.

C. There are no known reductions of solid waste methods that are made available by this facility.

2.9.3. State Compliance

Payson City Corporation has complied with State regulations in the operation of the landfill since the beginning of operations.

3. PART III - TECHNICAL DATA

3.1. Maps

See appendix E for drawing No. III-1: U.S. Geological Survey Topographic Map

3.2. Topographic Maps

See appendix F for drawing numbers:

III-2	Topographic Map - Site Layout
III-2A	Cross Section A-A

3.3. Plans Drawings & Specifications

A. See appendix G for drawing numbers:
- III-3-a-1 Existing and final fill profiles, stations 0 through 4
- III-3-a-2 Existing and final fill profiles, stations 5 through 9
- III-3-a-3 Existing and final fill profiles, stations 10 through 127
- III-3-a-4 Fill unit and element details

B. See Appendix I for the Geohydrological report and groundwater monitoring well data

C. See appendix H for the drawing numbers:
- P-LF_SIT Site Plan
- P-LF_BASPlan & Profile
- P-LF_PIP Pipe System Layout
- P-LF_DETInlet Box Details

3.4. Geohydrological assessment

See the attached Geohydrological report prepared by Bingham Environmental

3.5. Slope Stability Of Final Cover

Slope stability analysis for the landfill final proposed fill profile was performed using SLOPE/W. SLOPE/W is a proprietary software program that uses limit equilibrium theory to compute the factor of safety of earth and rock slopes. Three stability cases were analyzed using the Bishops Method for slope stability using conservative strength properties for both the native soils, cover soils and the refuse (see Appendix H for Graphical Representations).

Case 1: End of Construction

Case 1 was analyzed with a 40 pqf unit weight, 36^0 friction angle and 0 psf cohesion for the newly placed refuse. The computed factor of safety for this case was 1.98. A factor of safety of 1.5 or higher is considered acceptable for slope stability.

Case 2: End of Construction with Earthquake Loads (Most Critical Case)

Case 2 was analyzed with a 40 pqf unit weight, 36^0 friction angle and 0 psf cohesion for the newly placed refuse. Earthquake loads equivalent to both 0.25-g vertical and horizontal ground acceleration was applied for the analysis. The computed factor of safety for this case was 1.12. A factor of safety of 1.1 or higher is considered acceptable for temporary earthquake loading.

Case 3: Approximately 30 Years After Construction

Case 3 was analyzed with a 62 pqf unit weight, 33^0 friction angle and 3000 psf cohesion for the consolidated 30 years or older refuse. The computed factor of safety for this case was 2.12. A factor of safety of 1.5 or higher is considered acceptable for slope stability.

3.6. Engineering Report

The following engineering report addresses the facility's compliance with:

Location standards
Unit or cell design and operation
Leachate system
Run-on and run-off systems
Closure and post closure
Maintenance and Land use

3.6.1. Location Standards

The Payson City Class V Landfill meets the location standards as defined in R315-302-1. The landfill is located on the sloping foothills on the west side of the Utah valley in the southern end of Utah County. This location provides a area somewhat remote and isolated from urban areas, yet is close enough to provide efficient travel times for waste deliveries. The landfill is not within the distance restrictions for any parks, recreation areas, ecologically and scientifically significant natural areas, or farmland that has been identified as being of "statewide importance", or residential areas.

3.6.1.1. Separation Airport

The landfill far exceeds the separation distances from the nearest airport as required by regulation. The Spanish Fork Airport is the nearest airport, and it is approximately 10.5 miles northeast of the landfill.

3.6.1.2. Flood-Plain

The landfill is not located within any flood-plain areas according to the Utah County FEMA Flood Plain map. The landfill facility and structures will not restrict the flow of a 100-year flood nor will the 100 year flood washout any waste materials into streams, rivers, or off-site.

3.6.1.3. Wetlands

The landfill is located on the foothills, with the area sloping to the east. There are no naturally occurring streams, rivers, ponds, lakes, marshes, bogs, or other wetlands within the facility boundary. The facility meets the requirements of the wetland location criteria as defined by the regulations.

3.6.1.4. Seismic Zone

The landfill facility is located in a seismic impact zone. Figure 3.6.1.4.1 is a graph generated from the Seismic Design Parameters Version 3.10 2000 ICBO. The design parameters shown on Figure 3.6.1.4.1 should be used for the design of any structure to be built on the landfill site.

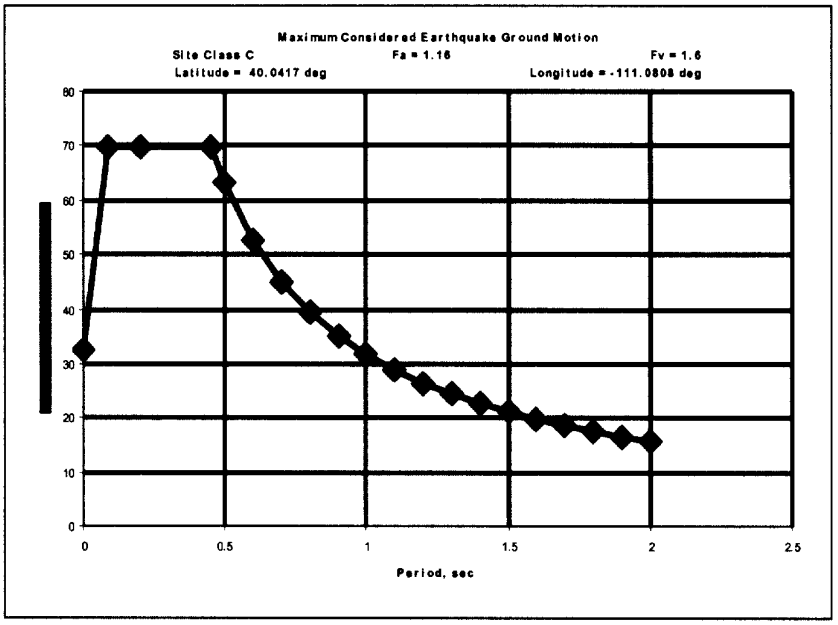


Figure 3.6.1.4.1 Seismic Design Parameters

3.6.2. Unit Cell Design and Operation

The unit and cell design details are as contained on Drawing III-3-a-4. (See appendix G) Information concerning the fill unit and cell can be found on the drawing.

3.6.3. Leachate Collection System

The landfill does not contain a Leachate collection system.

3.6.4. Run-On and Run-Off Systems

The existing run-on and run-off prevention system is as indicated on drawing numbers: III-3-c-1, III-3-c-2, III-3-c-3, and III-3-c-4. (These drawings are located in appendix G.)

3.6.5. Closure and Post Closure

The closure and post closure design of the landfill will be as discussed in Part II, sections 6 and 7 (pages 12 through 16 of this application). Closure will be completed in phases as various fill units are completed and closed.

3.6.6. Maintenance and Land Use

Maintenance of the landfill will take place on a daily basis through the remaining open life of the landfill. During post closure of the landfill, maintenance will take place on a quarterly basis and more frequently if conditions require. The final cover and run-on/run-off systems will be inspected and repaired as required. All landfill equipment, including ground water sampling equipment and methane sampling equipment will be maintained according to the manufacturers recommended schedule.

It is anticipated that after closure, the landfill area will be for used for grazing or other undeveloped uses.

End of report

APPENDIX A

1. Drawing of Landfill Property
2. Deeds for Landfill Property

REVISION	DATE	BY	DESCRIPTION	DESIGN JHJ	DRAWN JHJ
				CHECKED	CHECKED
				SCALE 1"=200'	DATE 01/29/98
				F.B.NO.	

PAYSON CITY
438 WEST UTAH AVE.
PAYSON, UTAH 84651
PHONE 465-5200

PAYSON CITY LANDFILL
DRAWING OF LANDFILL PROPERTY

SHEET 1 OF 1
DRWG NO

"THIS IS A LEGALLY BINDING CONTRACT. IF NOT UNDERSTOOD S COMPETENT ADVICE."

1/14

Recorded at Request of

at ..... M. Fee Paid $.....

by ..... Dep. Book ..... Page ..... Ref.

Mail tax notice to 15578 Address

RECORDED AT THE REQUEST OF Payson City
1982 JUN 23 AM 10 04
UTAH COUNTY RECORDER
DEPUTY

15578

QUIT-CLAIM DEED

HARVEY L. HUTCHINSON and VARO HUTCHINSON

grantor

of Alpine , County of Utah , State of Utah, hereby QUIT-CLAIM to Payson City Corporation

grantee

of Payson for the sum of DOLLARS,

Gift

the following described tract of land in Utah County, State of Utah:

Commencing at the NW Cor. of the NE¼ of Sec. 14, T 9 S, R 1 E, SLB & M, said point being also N 89°32'04" E along Section line 1327.25 according to Utah Coordinate Bearing Central Zone from the NW Corner of said Section 14 and S 0°08'43" W 2678.01'. Thence S 0°15'26" E. 724.5'; N 88°23'55" E 1325.70'; N 0°05'48" E 112.9' to the center of the Highline Canal; N 44°10'14" W 96.49' along centerline of the Highline Canal; N 33°10'01" W 260.69'; N 20°57'59" W 458.53'; S 81°35'30" W 958.52' to point of beginning. Containing approx. 20.38 acres.

WITNESS the hand of said grantor , this 22nd day of June , A. D. one thousand nine hundred and eighty-two.

Signed in the presence of

Harvey L. Hutchinson
Varo Hutchinson

STATE OF UTAH, } ss.
COUNTY OF Utah }

On the 22nd day of June personally appeared before me

the signer of the within instrument, who duly acknowledged to me that he executed the same.

Emily G Beck
Notary Public.

My commission expires Oct 3, 1982 Residing in Alpine, Utah

APPROVED FORM — UTAH SECURITIES COMMISSION

FORM 103—QUIT CLAIM DEED—KELLY CO., 55 W. NINTH SOUTH, S.L.C., UTAH

BOOK 1987 PAGE 469

WHEN RECORDED, MAIL TO:

22157

Space Above for Recorder's Use

RECORDED AT THE REQUEST OF
1982 SEP -7 PM 2:25
NINA B. REID
UTAH COUNTY RECORDER
FEE
DEPUTY
22157

WARRANTY DEED

HARVEY L. and VARO C. HUTCHINSON, grantor

of Alpine, County of Utah, State of Utah;

hereby CONVEY and WARRANT to PAYSON CITY CORPORATION
437 W. Utah Ave.
Payson, Utah 84651

, grantee

of Payson City, County of Utah, State of Utah

for the sum of A TRADE and One Dollar DOLLARS,

the following described tract of land in Utah County, State of Utah, to-wit:

Commencing at the Northwest Corner of the Northeast Quarter of the Northwest Quarter of Section 14, Township 9 South, Range 1 East, Salt Lake Base and Meridian, said point being also North 89°32'04" East along the Section Line 1327.25 feet according to Utah Coordinate Bearings, Central Zone from the Northwest Corner of said Section 14, Thence South 00°08'43" West along the Quarter-quarter Section Line 2678.01 feet to the East-west Quarter Section Line, N 81°35'30" E to centerline of Highling Canal, North 57°18'09" West 178.38 feet along Highline Canal, North 33°27'37" West 303.63 feet, North 07°43'28" West 382.56 feet, North 25°36'15" West 382.69 feet, North 40°17'52" West 214.44 feet, North 16°08'07" West 217.05 feet, North 12°40'03" East 185.92 feet, North 15°54'07" East 200.77 feet, North 00°40'41" East 326.12 feet, North 13°28'30" West 160.67 feet, North 21°11'11" West 252.76 feet to the Section Line, thence parting from said canal centerline South 89°32'04" West along the Section Line 185.44 feet to the point of beginning. Area 26.62 acres.

Excepting therefrom for Blanch Whitelock a 20' easement immediately adjacent to the west side of the Highline Canal which traverses the east property boundary to her north property boundary for the purpose of ingress and egress to her property.

WITNESS the hand of said grantor, this 29 day of June, 19 82.

Signed in the presence of

Harvey L. Hutchinson
Varo C. Hutchinson

STATE OF UTAH,
County of Utah } ss.

On the 29th day of June personally appeared before me the signer of the above instrument, who duly acknowledged to me that he executed the same.

Emily L. Beck
Notary Public.

My commission expires Oct 3, 1982 Residing in Alpine, Utah

APPROVED FORM — UTAH SECURITIES COMMISSION

FORM 101 — WARRANTY DEED — KELLY CO., 58 W. NINTH SO., S.L.C. L-1108

BOOK 2000 PAGE 346

containing One Hundred Twenty and 20/100 (120) acres according to the said certificate.

TO HAVE AND TO HOLD the above described and granted premises unto the said

Larsen City Corporation

and to its successors

~~heirs~~ and assigns forever, subject to any easement or right of way of the public, to use all such highways as may have been established according to law, over the same or any part thereof, and subject also to all rights of way for ditches, tunnels, and telephone and transmission lines that may have been constructed by authority of the United States.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the great seal of the State of Utah to be hereunto affixed.

Done at Salt Lake City, this Twenty-First day of June in the year of our Lord,

one thousand nine hundred and Fifty-One, and of the independence of the United States of America the one hundred and Seventy-Fourth, and in the Fifty-Fifth year of the State of Utah.

By the Governor: Heber Bennion, Jr.

Wayne Christiansen
Deputy Secretary of State.

Lee E. Young
Executive Secretary, State Land Board.

Recorded Patent Book 34 Page 476

Certificate of Sale No. C-23468

J. Lambert Sikon

PAID IN FULL 6/51

CASHIER

11095

No. 17370

To All to Whom These Presents Shall Come, Greeting:

WHEREAS, Payson City Corporation

Payson

of the County of Utah State of Utah heretofore purchased from the State of Utah, the lands hereinafter described, pursuant to the laws of said State in such case made and provided,

AND WHEREAS, the said Payson City Corporation

has paid for said lands, pursuant to the conditions of said sale, and the laws of the State duly enacted in relation thereto, the sum of Four Hundred Twenty and 70/100 ($420.70) Dollars, and all legal interest thereon accrued, as fully appears by the certificate of the proper officer, now on file in the office of the Secretary of State of the State of Utah;

NOW THEREFORE, I Heber Pennion, Jr. Acting, Governor, in consideration of the premises, and by virtue of the power and authority vested in me by the laws of the State of Utah, in such case made and provided, do issue this PATENT, in the name and by the authority of the State of Utah, hereby granting and confirming unto the said

Payson City Corporation

and to its successors ~~heirs~~ and assigns forever, the following piece or parcel of land, situate in the County of Utah State aforesaid, to-wit: Lot One (1); of Section Fourteen (14): North Half($N\frac{1}{2}$) of the Northeast Quarter ($NE\frac{1}{4}$) of Section Fifteen (15), Township Nine (9) South, Range One (1) East. Salt Lake Base and Meridian.

(Reserving to the State of Utah, all coal and other minerals, ~~in the above lands, and to it, or persons authorized by it,~~ the right to prospect for, mine and remove coal and other minerals from the same, upon compliance with the conditions and subject to the limitations of Title 86-Chapter 1, Revised Statutes of Utah 1933 and amendments thereto.)

APPENDIX B

Financial Assurance Mechanism for Closure and Post Closure:
Copy of Local Government Financial Test

February 26, 2003

To Whom It May Concern:

This letter is written as required for Financial Assurance listing all current cost estimates covered by the test (R315-309-3 (7) (b) (ii). Having no outstanding general obligation bonds, listed are the required ratios:

Ratio "A"

cash + marketable securities	> or = 0.05	5,681,186	= 0.32
Total expenses		17,493,244	

2002 Expenses (audit pgs 5 and 9)		
General Fund		6,049,605.00
Enterprise Funds (w/o Post Closure Expenses)		11,121,491.00
Internal Service Fund		322,145.00
	$	17,493,244.00

2002 Cash + Marketable Securities (audit pg 3)		
General Fund		706,991.00
		545,677.00
Enterprise Funds		1,107,885.00
		3,286,287.00
Internal Service Fund		34,346.00
	$	5,681,186.00

Ratio "B"

annual debt service	< or = 0.2	1896993	= 0.10
Total expenses		17493244	

2003 Debt Service (audit pg 22)		
Revenue Bonds		1,090,000.00
		657,849.00
Tax Increment Bonds		60,000.00
		51,500.00
Notes Payable		28,655.00
		8,989.00
	$	1,896,993.00

Also attached is a copy of Payson City's Independent Auditors' Report for the Year Ended June 30, 2002. (These figures came from that report)

Sincerely,

Jeanette Curtis
City Recorder/Finance Director
Payson City

Payson City Corporation

439 West Utah Avenue, Payson, UT 84651 (801) 465-5200 Fax (801) 465-5208

CITY OF PAYSON, UTAH
INDEPENDENT AUDITORS' REPORT
GENERAL-PURPOSE FINANCIAL STATEMENTS
YEAR ENDED JUNE 30, 2002

CITY OF PAYSON, UTAH
TABLE OF CONTENTS
YEAR ENDED JUNE 30, 2002

CITY OF PAYSON, UTAH
TABLE OF CONTENTS (CONCLUDED)
YEAR ENDED JUNE 30, 2002

PETERSON
& ASSOCIATES

65 N. MAIN
I FORK UT 84660
)1) 798-3545
801) 798-3678

'7 N. HWY. 6
TA UT 84624
5) 864-3888
435) 864-3889

INDEPENDENT AUDITORS' REPORT

December 18, 2002

Honorable Mayor
Members of the City Council
City of Payson, Utah

Mayor and Council Members:

We have audited the accompanying general-purpose financial statements of Payson City as of June 30, 2002, and for the year then ended as listed in the foregoing Table of Contents. These general-purpose financial statements are the responsibility of the City's management. Our responsibility is to express an opinion on these general-purpose financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the general-purpose financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the general-purpose financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall general-purpose financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the aforementioned general-purpose financial statements present fairly, in all material respects, the financial position of Payson City at June 30, 2002, and the results of its operations and the cash flows of its proprietary fund types and nonexpendable trust funds for the year then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards*, we have also issued a report dated December 18, 2002, on our consideration of Payson City's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grants. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be read in conjunction with this report in considering the results of our audit.

Our audit was performed for the purpose of forming an opinion on the general-purpose financial statements of Payson City, taken as a whole. The combining and individual fund and account group financial statements and schedules, listed as Supplementary Information in the Table of Contents, are presented for the purpose of additional analysis and are not a required part of the general-purpose financial statements of Payson City. The above mentioned information has been subjected to the auditing procedures applied in the audit of the general-purpose financial statements and, in our opinion, is fairly stated in all material respects in relation to the general-purpose financial statements taken as a whole.

Peterson & Associates, P.C.

Peterson & Associates, P.C.
Certified Public Accountants

CITY OF PAYSON, UTAH
COMBINED BALANCE SHEET–
ALL FUND TYPES AND ACCOUNT GROUPS
JUNE 30, 2002
(With Comparative Totals for June 30, 2001)

	Governmental Fund Types				Proprietary Fund Types		Fiduciary Fund Type	Account Groups		Totals (Memorandum Only)	
ASSETS	General	Special Revenue	Debt Service	Capital Projects	Enterprise	Internal Service	Non-Expendable Trust and Agency	General Fixed Assets	General Long-Term Debt	2002	2001
Cash and Cash Equivalents	$ 706,991	$	$	$	$ 1,107,885	$ 34,346	$ 3,533	$	$	$ 1,852,755	$ 906,564
Accounts Receivable:											
Trade					1,531,200					1,531,200	1,475,893
Allowance for Doubtful Accounts					(137,177)					(137,177)	(141,504)
Other	178,329									178,329	172,911
Grants											
Due From Other Funds	1,978,498	8,822	5,442		1,673,647	75,931	7,810			3,750,150	3,157,007
Notes Receivable							118,037			118,037	31,070
Restricted Assets:											
Cash and Cash Equivalents	545,677	98,996	2,461	1,266,572	3,286,287		392,573			5,592,566	4,749,691
Water Shares					198,400					198,400	206,400
Land					6,964,444			3,133,661		10,098,105	8,823,827
Building and Improvements					249,640			2,059,430		2,309,070	1,639,416
Improvements Other											
Than Buildings					36,862,302			2,323,102		39,185,404	37,170,284
Machinery and Equipment					3,264,792	1,116,011		1,054,142		5,434,945	5,842,637
Construction in Progress					6,313,601			51,845		6,365,446	323,914
Accumulated Depreciation					(18,820,976)	(825,452)				(19,646,428)	(18,626,131)
Other Assets					216,194					216,194	229,026
Amount Available in Debt Service Fund									7,903	7,903	5,345
Amount to be Provided for the Retirement of Indebtedness									3,681,330	3,681,330	1,413,765
TOTAL ASSETS	$ 3,409,495	$ 107,818	$ 7,903	$ 1,266,572	$ 42,710,239	$ 400,836	$ 521,953	$ 8,622,180	$ 3,689,233	$ 60,736,229	$ 47,380,115

The Notes to the Financial Statements are an integral part of this Statement.

CITY OF PAYSON, UTAH
COMBINED BALANCE SHEET--
ALL FUND TYPES AND ACCOUNT GROUPS (CONTINUED)
JUNE 30, 2002
(With Comparative Totals for June 30, 2001)

	Governmental Fund Types				Proprietary Fund Types		Fiduciary Fund Type	Account Groups		Totals (Memorandum Only)	
LIABILITIES AND EQUITY	General	Special Revenue	Debt Service	Capital Projects	Enterprise	Internal Service	Non-Expendable Trust and Agency	General Fixed Assets	General Long-Term Debt	2002	2001
LIABILITIES											
Accounts Payable	$ 423,840		$	$	$	$	$	$	$	$ 423,840	$ 167,100
Accrued Liabilities	112,210				60,999	3,776				176,985	320,248
Interest Payable		8,583			230,671					239,254	124,949
Deposits	156,246				320,209					476,455	528,413
Compensated Absences					305,872	25,927			291,233	623,032	587,852
Due To Other Funds		2,089,834		516,373	1,143,476		467			3,750,150	3,157,007
Current Portion of Capital Leases Payable					137,300					137,300	165,576
Current Portion of Bonds Payable		50,000			779,000					829,000	792,000
Capital Leases Payable					596,157					596,157	785,533
Water Share Liability					140,926					140,926	105,871
Special Assessment Debt With/Without Government Commitment									3,398,000	3,398,000	3,125,000
Note Payable		112,367			5,940,000					6,052,367	6,432,973
Bonds Payable		950,000			12,305,000					13,255,000	13,084,000
Closure and Postclosure Liability					491,928					491,928	78,355
TOTAL LIABILITIES	692,296	3,210,784		516,373	22,451,538	29,703	467		3,689,233	30,590,394	27,454,877
EQUITY											
Contributed Capital					5,013,006	15,343				5,028,349	4,981,404
Investment in General Fixed Assets								8,622,180		8,622,180	6,328,770
Fund Balances:											
Reserved for:											
Class "C" Road	46,055									46,055	51,365
Special Assessments			7,903	750,199						758,102	5,345
Endowments							212,308			212,308	217,823
Revolving Loan							309,178			309,178	293,189
Impact Fees		107,800								107,800	146,019
Grant Funds		18								18	
Designated	350,138									350,138	719,407
Unreserved (Deficit)	2,321,006	(3,210,784)								(889,778)	(1,672,995)
Retained Earnings:											
Reserved for:											
Bond and Lease Requirements					2,193,015					2,193,015	1,978,558
Landfill Closure Costs					268,921					268,921	261,314
Impact Fees					786,775					786,775	910,995
Unreserved					11,996,984	355,790				12,352,774	10,704,844
TOTAL EQUITY	2,717,199	(3,102,966)	7,903	750,199	20,258,701	371,133	521,486	8,622,180		30,145,835	24,925,238
TOTAL LIABILITIES AND EQUITY	$ 3,409,495	$ 107,818	$ 7,903	$ 1,266,572	$ 42,710,239	$ 400,836	$ 521,953	$ 8,622,180	$ 3,689,233	$ 60,736,229	$ 47,380,115

The Notes to the Financial Statements are an integral part of this Statement.

CITY OF PAYSON, UTAH

COMBINED STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCES-- ALL GOVERNMENTAL FUND TYPES YEAR ENDED JUNE 30, 2002

(With Comparative Totals for the Year Ended June 30, 2001)

	Governmental Fund Types				Totals (Memorandum Only)	
	General	Special Revenue	Debt Service	Capital Projects	2002	2001
REVENUES						
Taxes	$ 3,116,786	$ 341,728	$	$	$ 3,458,514	$ 2,972,557
Licenses and Permits	391,705				391,705	576,830
Intergovernmental Revenues	648,304	52,389			700,693	691,728
Charges for Services	579,667				579,667	467,680
Fines and Forfeitures	147,566				147,566	148,324
Interest Income	62,241	3,725		33,052	99,018	124,377
Miscellaneous	109,676	40,323	286,672	22,383	459,054	245,287
TOTAL REVENUES	5,055,945	438,165	286,672	55,435	5,836,217	5,226,783
EXPENDITURES						
General Government	1,998,542				1,998,542	1,916,908
Public Safety	1,766,889				1,766,889	1,451,441
Highways and Public Improvements	569,319				569,319	738,169
Parks, Recreation, and Public Property	1,485,782				1,485,782	876,793
Community and Economic Development	58,100				58,100	52,892
Cemetery	170,973				170,973	128,402
Capital Outlay		457,016	1,511	1,805,236	2,263,763	601,861
Debt Service:						
Bond Retirement			282,603		282,603	202,907
Interest		33,626			33,626	39,584
TOTAL EXPENDITURES	6,049,605	490,642	284,114	1,805,236	8,629,597	6,008,957
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	(993,660)	(52,477)	2,558	(1,749,801)	(2,793,380)	(782,174)
OTHER FINANCING SOURCES (USES)						
Operating Transfers In	2,100,463				2,100,463	2,124,229
Operating Transfers Out	(887,293)				(887,293)	(592,300)
Proceeds From Sale of Assets	86,156				86,156	
Special Assessment Debt				2,500,000	2,500,000	
Impact Fees		117,248			117,248	175,314
TOTAL OTHER FINANCING SOURCES (USES)	1,299,326	117,248		2,500,000	3,916,574	1,707,243
EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	305,666	64,771	2,558	750,199	1,123,194	925,069
FUND BALANCE (Deficit)--JULY 1	2,411,533	(3,167,737)	5,345		(750,859)	(1,675,928)
FUND BALANCE (Deficit)--JUNE 30	$ 2,717,199	($ 3,102,966)	$ 7,903	$ 750,199	$ 372,335	($ 750,859)

The Notes to the Financial Statements are an integral part of this Statement.

CITY OF PAYSON, UTAH
COMBINED STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES--BUDGET AND ACTUAL--
ALL GOVERNMENTAL FUND TYPES
YEAR ENDED JUNE 30, 2002

	GENERAL FUND			SPECIAL REVENUE FUND			DEBT SERVICE FUND			CAPTIAL PROJECTS		
REVENUES	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)
Taxes:												
Property Taxes	$ 575,000	$ 604,963	$ 29,963	$ 341,727	$ 341,728	$	$	$	$	$	$	$
General Sales Taxes	1,300,000	1,449,123	149,123									
Motor Vehicle Taxes	130,000	144,717	14,717									
Other Taxes	872,436	917,983	45,547									
Total Taxes	2,877,436	3,116,786	239,350	341,727	341,728							
Licenses and Permits:												
Business Licenses and Permits	35,000	36,495	1,495									
Building Permits	315,000	351,129	36,129									
Animal Licenses	4,000	4,081	81									
Total Licenses and Permits	354,000	391,705	37,705									
Intergovernmental Revenue:												
Federal Grants	40,948	41,033	85		52,389	52,389						
State Grants	446,524	447,462	938									
Other Local Government Revenue	158,307	159,809	1,502									
Total Intergovernmental Revenue	645,779	648,304	2,525		52,389	52,389						
Charges for Services:												
Development Fees	25,000	13,080	(11,920)									
Other Fees and Charges	59,562	53,866	(5,696)									
Parks and Public Property	71,875	72,579	704									
Recreation	404,474	440,142	35,668									
Total Charges for Services	560,911	579,667	18,756									
Fines and Forfeitures	140,000	147,566	7,566									
Interest Income	61,465	62,241	776	3,753	3,725	(28)				17,000	33,052	16,052
Miscellaneous	120,658	109,676	(10,982)	40,000	40,323	323	286,672	286,672		18,383	22,383	4,000
TOTAL REVENUES	4,760,249	5,055,945	295,696	385,480	438,165	52,684	286,672	286,672		35,383	55,435	20,052

The Notes to the Financial Statements are an integral part of this statement.

CITY OF PAYSON, UTAH
COMBINED STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES--BUDGET AND ACTUAL--
ALL GOVERNMENTAL FUND TYPES (Continued)
YEAR ENDED JUNE 30, 2002

	GENERAL FUND			SPECIAL REVENUE FUND			DEBT SERVICE FUND			CAPTIAL PROJECTS		
EXPENDITURES	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)
General Government:												
Administrative	1,334,571	1,215,988	118,583									
Planning and Zoning	517,365	498,790	18,575									
Judicial	136,234	129,892	6,342									
Department	190,463	153,872	36,591									
Total General Government	2,178,633	1,998,542	180,091									
Public Safety:												
Police Administration	1,304,711	1,291,558	13,153									
Fire Administration	509,866	353,033	156,833									
Victims Advocate	49,708	45,192	4,516									
Animal Control	79,146	77,106	2,040									
Total Public Safety	1,943,431	1,766,889	176,542									
Highways and Public Improvements:												
Streets and Sidewalks	155,425	143,152	12,273									
Class "C" Road	747,500	426,167	321,333									
Total Highways and Public Improvements	902,925	569,319	333,606									
Parks, Recreation, and Public Property:												
Parks	324,481	196,762	127,719									
Swimming Pool	129,490	104,055	25,435									
Library	870,726	823,832	46,894									
Recreation and Culture	191,433	167,961	23,472									
Youth Sports	115,200	118,189	(2,989)									
Adult Sports	41,000	35,583	5,417									
Snack Shack	37,331	39,400	(2,069)									
Total Parks, Recreation, and Public Property	1,709,661	1,485,782	223,879									
Community and Economic Development:												
Senior Citizens	74,610	58,100	16,510									
Redevelopment Agencies												
Total Community and Economic Development	74,610	58,100	16,510									
Cemetery	241,125	170,973	70,152									
Capital Outlay				686,559	457,016	229,543	423	1,511	(1,088)	1,506,004	1,805,236	(299,232)
Debt Service:												
Bond Retirement				60,000		60,000	282,603	282,603				
Interest				47,160	33,626	13,534						
Total Debt Service				107,160	33,626	73,534	282,603	282,603				
TOTAL EXPENDITURES	7,050,385	6,049,605	1,000,780	793,719	490,642	303,077	283,026	284,114	(1,088)	1,506,004	1,805,236	(299,232)

The Notes to the Financial Statements are an integral part of this statement.

CITY OF PAYSON, UTAH
COMBINED STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES--BUDGET AND ACTUAL--
ALL GOVERNMENTAL FUND TYPES (Continued)
YEAR ENDED JUNE 30, 2002

	GENERAL FUND			SPECIAL REVENUE FUND			DEBT SERVICE FUND			CAPTIAL PROJECTS		
EXPENDITURES (CONTINUED)	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)	Budget	Actual	Variance--Favorable (Unfavorable)
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	(2,290,136)	(993,660)	1,296,476	(408,239)	(52,477)	355,762	3,646	2,558	(1,088)	(1,470,621)	(1,749,801)	(279,180)
OTHER FINANCING SOURCES (USES)												
Transfers In	2,669,055	2,100,463	(568,592)									
Special Assessment Debt										1,500,000	2,500,000	1,000,000
Proceeds From Sale of Assets	86,156	86,156										
Transfers Out	(887,293)	(887,293)										
Impact Fees				163,000	117,248	(45,752)						
TOTAL OTHER FINANCING SOURCES (USES)	1,867,918	1,299,326	(568,592)	163,000	117,248	(45,752)				1,500,000	2,500,000	1,000,000
EXCESS (DEFICIENCY) OF REVENUE AND OTHER SOURCES OVER EXPENDITURES AND OTHER (USES)	($ 422,218)	305,666	$ 727,884	($ 245,239)	64,771	$ 310,010	$ 3,646	2,558	($ 1,088)	$ 29,379	750,199	$ 720,820
FUND BALANCES - JULY 1, 2001		2,411,533			(3,167,737)			5,345				
FUND BALANCE - JUNE 30, 2002		$ 2,717,199			($ 3,102,966)			$ 7,903			$ 750,199	

The Notes to the Financial Statements are an integral part of this statement.

CITY OF PAYSON, UTAH
COMBINED STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN RETAINED EARNINGS--
ALL PROPRIETARY FUND TYPES AND NON-EXPENDABLE TRUST FUNDS
YEAR ENDED JUNE 30, 2002
(With Comparative Totals for the Year Ended June 30, 2001)

	Proprietary Fund Type		Fiduciary Fund Type	Totals (Memorandum Only)	
	Enterprise	Internal Service	Non-Expendable Trust and Agency	2002	2001
OPERATING REVENUES					
Charges for Services	$ 14,085,580	$	$ 9,350	$ 14,094,930	$ 11,157,470
Impact Fees	959,816			959,816	1,523,385
Miscellaneous	486,321	2,334		488,655	95,189
TOTAL OPERATING REVENUES	15,531,717	2,334	9,350	15,543,401	12,776,044
OPERATING EXPENSES					
Power Purchases	3,809,377			3,809,377	2,946,601
Salaries and Wages	1,763,737	117,856		1,881,593	1,738,461
Employee Benefits	813,171	66,984		880,155	797,691
Materials and Supplies	2,678,595	33,798		2,712,393	1,663,710
Repairs and Maintenance	589,575	31,988		621,563	292,052
Depreciation	1,087,316	66,515		1,153,831	1,264,158
Amortization	12,832			12,832	12,832
Utilities and Telephone	69,713	4,378		74,091	77,626
Travel and Training	26,298	629		26,927	18,042
Professional Services	193,450			193,450	237,077
Contracted Services	32,257			32,257	26,990
Closure and Postclosure Costs	413,573			413,573	23,812
Sundry Charges	45,170			45,170	27,185
TOTAL OPERATING EXPENSES	11,535,064	322,148		11,857,212	9,126,237
OPERATING INCOME (LOSS)	3,996,653	(319,814)	9,350	3,686,189	3,649,807
NON-OPERATING REVENUES (EXPENSES)					
Interest Income	162,568		21,924	184,492	252,350
Interest Expense	(811,665)			(811,665)	(475,717)
Grant Revenue					9,437
Gain (Loss) on Sale of Fixed Assets	(81,318)	(7,480)		(88,798)	(247)
TOTAL NON-OPERATING REVENUES (EXPENSES)	(730,415)	(7,480)	21,924	(715,971)	(214,177)
INCOME AFTER NON-OPERATING REVENUES (EXPENSES)	3,266,238	(327,294)	31,274	2,970,218	3,435,630
OTHER FINANCING SOURCES (USES)					
Operating Transfers In	918,808	354,628		1,273,436	884,329
Operating Transfers Out	(2,466,606)		(20,000)	(2,486,606)	(2,416,258)
TOTAL OTHER FINANCING SOURCES (USES)	(1,547,798)	354,628	(20,000)	(1,213,170)	(1,531,929)
NET INCOME	1,718,440	27,334	11,274	1,757,048	1,903,701
RETAINED EARNINGS/ FUND BALANCE--JULY 1	13,527,255	328,456	510,212	14,365,923	12,462,222
RETAINED EARNINGS/ FUND BALANCE--JUNE 30	$ 15,245,695	$ 355,790	$ 521,486	$ 16,122,971	$ 14,365,923

The Notes to the Financial Statements are an integral part of this Statement.

CITY OF PAYSON, UTAH
COMBINED STATEMENT OF CASH FLOWS--
ALL PROPRIETARY FUND TYPES AND
NON-EXPENDABLE TRUST FUNDS
YEAR ENDED JUNE 30, 2002
(With Comparative Totals for the Year Ended June 30, 2001)

	Proprietary Fund Types		Fiduciary Fund Types	Totals (Memorandum Only)	
	Enterprise	Internal Service	Non-Expendable Trust and Agency	2002	2001
CASH FLOWS FROM OPERATING ACTIVITIES					
Operating Income (Loss)	$ 3,996,653	($ 319,814)	$ 9,350	$ 3,686,189	$ 3,649,807
Noncash Revenue and Expense Adjustments to Reconcile Operating Income to Net Cash Provided by Operating Activities:					
Depreciation and Amortization	1,100,148	66,515		1,166,663	1,276,990
Decrease (Increase) in Accounts Receivable	(55,306)			(55,306)	(270,528)
Decrease (Increase) in Notes Receivable			(86,965)	(86,965)	(21,643)
Decrease (Increase) in Amounts Due From Other Funds	(120,270)	(5,905)	(247)	(126,422)	473,802
Increase (Decrease) in Customer Deposits	(80,632)			(80,632)	72,560
Increase (Decrease) in Accounts Payable					(12,182)
Increase (Decrease) in Accued Liabilites	(28,776)			(28,776)	4,505
Increase (Decrease) in Compensated Absences	34,748	3,307		38,055	15,886
Increase in Closure and Postclosure Liability	413,573			413,573	23,813
Increase (Decrease) in Amounts Due to Other Funds	(33,425)		(14,118)	(47,543)	(16,938)
Increase (Decrease) in Allowance for Doubtful Accounts	(4,327)			(4,327)	27,600
Increase (Decrease) in Water Share Liability	35,055			35,055	56,082
Increase (Decrease) in Accrued Interest Payable	114,736			114,736	(21,372)
NET CASH FLOWS PROVIDED (USED) BY OPERATING ACTIVITIES	5,372,177	(255,897)	(91,980)	5,024,300	5,258,382
CASH FLOWS FROM NON-CAPITAL AND RELATED FINANCING ACTIVITIES					
Operating Transfers In	918,808	354,628		1,273,436	884,329
Operating Transfers Out	(2,466,606)		(20,000)	(2,486,606)	(2,416,258)
Grant Revenue					9,437
NET CASH PROVIDED (USED) BY NON-CAPITAL AND RELATED FINANCING ACTIVITIES	(1,547,798)	354,628	(20,000)	(1,213,170)	(1,522,492)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES					
Payments on Bonds	(1,097,000)			(1,097,000)	(1,102,000)
Payments on Capital Leases	(333,051)			(333,051)	(439,533)
Interest Paid on Debt	(811,665)			(811,665)	(475,717)
Acquisition of Property and Equipment	(7,380,212)	(90,487)		(7,470,699)	(8,721,955)
Proceeds from Loans	6,000,000			6,000,000	5,940,000
Proceeds from Sale of Assets					(247)
Proceeds from Capital Leases	115,400			115,400	904,850
NET CASH PROVIDED (USED) BY CAPITAL AND RELATED FINANCING ACTIVITIES	(3,506,528)	(90,487)		(3,597,015)	(3,894,602)
CASH FLOW FROM INVESTING ACTIVITIES					
Interest Income	162,568		21,924	184,492	252,350
NET CASH FLOWS PROVIDED BY INVESTING ACTIVITIES	162,568		21,924	184,492	252,350
NET INCREASE (DECREASE) IN CASH	480,419	8,244	(90,056)	398,607	93,638
CASH AT JULY 1	3,643,854	26,102	486,162	4,156,118	4,062,480
CASH AT JUNE 30	$ 4,124,273	$ 34,346	$ 396,106	$ 4,554,725	$ 4,156,118

The Notes to the Financial Statements are an integral part of this Statement.

CITY OF PAYSON, UTAH
NOTES TO THE FINANCIAL STATEMENTS
JUNE 30, 2002

I. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

A. REPORTING ENTITY

Payson City is a political subdivision of the State of Utah. The City is governed by a mayor and an elected board of five council members. The financial statements of Payson City include those of separately administered organizations that are controlled by or are dependent on the City. Control or dependence is determined on the basis of financial interdependence, selection of governing authority, designation of management ability to significantly influence operations and accountability for fiscal matters. Using these criteria no potential component units are included in the City's financial statements.

The accounting policies of Payson City, Utah, conform to generally accepted accounting principles as applicable to governmental units. The following is a summary of the more significant of such policies.

B. MEASUREMENT FOCUS, BASIS OF ACCOUNTING AND BASIS OF PRESENTATION

The accounts of the City are organized on the basis of funds and account groups, each of which is considered a separate accounting entity. The operations of each fund are accounted for with a separate set of self-balancing accounts that comprise its assets, liabilities, fund equity, revenues, and expenditures or expenses, as appropriate. Governmental resources are allocated to and accounted for in individual funds based upon the activities for which they are to be spent and the means by which spending activities are controlled.

The City has the following fund types and account groups:

Governmental funds are used to account for the City's general City activities. Governmental fund types use the flow of current financial resources measurement focus and the modified accrual basis of accounting. Under the modified accrual basis of accounting revenues are recognized when susceptible to accrual (i.e., when they are "measurable and available"). "Measurable" means the amount of the transaction can be determined and "available" means collectible within the current period or soon enough thereafter to pay liabilities of the current period. The City considers all revenues available if they are collected within 60 days after the end of the year. Expenditures are recorded when the related fund liability is incurred, except for unmatured interest on general long-term debt which is recognized when due, and certain compensated absences and claims and judgments which are recognized when the obligations are expected to be liquidated with expendable available financial resources.

Property taxes, franchise taxes, licenses, interest and special assessments are susceptible to accrual. Sales taxes collected and held by the state at year end on behalf of the City are also recognized as

revenue. Other receipts and taxes become measurable and available when cash is received by the City and are recognized as revenue at that time.

Entitlements and shared revenues are recorded at the time of receipt or earlier if the susceptible to accrual criteria are met. Expenditure-driven grants are recognized as revenue when the qualifying expenditures have been incurred and all other grant requirements have been met.

Property taxes are based on the assessments against property owners. Tax levies on such assessed values are certified to Utah County prior to the commencement of the fiscal year. Property taxes become a lien on January 1 and are levied on the first Monday in August. Taxes are due and payable on November 1, and are delinquent after November 30 of each year. Property taxes are collected by the Utah County Treasurer and remitted to the City shortly after collection.

Sales taxes are collected by the Utah State Tax Commission and are remitted to the City monthly.

Governmental funds used by Payson City include the following fund types:

The *general fund* is the general operating fund of the City. It is used for all financial resources except those required to be accounted for in another fund.

The *special revenue funds* are used to account for resources legally restricted to expenditures for specified current operating purposes or to the acquisition of furniture, fixtures, machinery, equipment, or other relatively minor or comparatively short-lived fixed assets. Accounting and financial reporting for general and special revenue funds is identical.

The *debt service fund* is used to account for the accumulation of resources for, and the payment of, general long-term debt principal, interest and related costs. Payson City records the collection and payment of Special Improvement District's assessments and debt payments in this fund.

The *capital projects fund* is used to account for financial resources to be used for the acquisition or construction of major capital improvements (other than those financed by enterprise and similar trust funds). The current project being reported in the capital project fund is the Special Improvement District (PIT property) capital improvements.

Proprietary funds are accounted for on the flow of economic resources measurement focus and use the accrual basis of accounting. Under this method, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred. The City applies all applicable FASB pronouncements in accounting and reporting for its proprietary operations. Proprietary funds used by Payson City include the following fund types:

Enterprise funds are used to account for operations that are financed and operated in a manner similar to private business enterprises. The intent of which is to have the costs of providing goods and

services to the general public on a continuing basis financed or recovered primarily through user charges.

Internal Service Funds are used to account for the financing of goods or services provided by one department or other departments of the City on a cost-plus basis.

Fiduciary funds account for assets held by the City in a trustee capacity or as an agent on behalf of others. Trust funds account for assets held by the City under the terms of a formal trust agreement.

The *nonexpendable trust fund* is accounted for in essentially the same manner as the proprietary funds, using the same measurement focus and basis of accounting. Nonexpendable trust funds account for assets of which the principal may not be spent.

Account Groups. The *general fixed assets account group* is used to account for fixed assets not accounted for in proprietary or trust funds. The *general long-term debt account group* is used to account for general long-term debt and certain other liabilities that are not specific liabilities of proprietary or trust funds.

C. APPLICABLE ACCOUNTING STANDARDS

The financial statements of the City have been prepared in conformity with generally accepted accounting principles as applied to governmental entities. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. With respect to proprietary activities, the City has adopted GASB Statement No. 20, "Accounting and Financial Reporting for Proprietary Funds and Other Governmental Entities that use Proprietary Fund Accounting." The City has elected to apply all applicable GASB pronouncements as well as Financial Accounting Standards Board (FASB) pronouncements and Accounting Principles Board (APB) Opinions, issued on or before November 30, 1989, unless those pronouncements conflict with or contradict GASB pronouncements. The City has elected not to apply FASB Statements and Interpretations issued after November 30, 1989 for proprietary activities.

D. ASSETS, LIABILITIES AND EQUITY

1. Deposits and Investments

The City considers cash and cash equivalents to be cash on hand, demand deposits, and all short-term investments with original maturities within three months or less from the date of acquisition. All short-term cash surpluses are maintained in a cash and investment pool and allocated to each fund based on deposit and investment balances. All investments are stated at cost or amortized cost, except for investments in the deferred compensation agency fund, which are stated at market value.

2. Receivables and Payables

Transactions between funds that are representative of lending/borrowing arrangements outstanding at the end of the fiscal year are referred to as either "interfund receivables/payables" (i.e., the current portion of interfund loans) or "advances to/from other funds" (i.e., the non-current portion of interfund loans). All other outstanding balances between funds are reported as "due to/from other funds."

3. Restricted Assets

Restricted assets consist of various cash balances that are restricted as to their use. Certain cash balances are restricted by provisions of the bond resolutions. These include the repairs and replacements, and bond and construction requirement accounts in the enterprise funds. Customer deposits are also restricted in the enterprise funds. Amounts are held in the agency fund for others. Special Revenue funds restricted are to be used for specified expenditures.

4. Fixed Assets

The accounting and reporting treatment applied to the fixed assets associated with a fund are determined by its measurement focus.

Fixed assets used in governmental fund types are recorded in the General Fixed Assets Account Group at cost or estimated historical cost if purchased or constructed. No depreciation has been provided on general fixed assets.

Fixed assets used in proprietary fund type operations (i.e., the Water, Sewer, and Electric funds) are accounted for within their respective funds. Annual depreciation is provided using the straight-line method over the following estimated useful lives:

Buildings and Improvements	25-50 Years
Improvements Other Than Buildings	10-50 Years
Machinery and Equipment	3-15 Years

Donated fixed assets are recorded at the estimated fair market value at the date of donation. Assets acquired through a capital lease are recorded at the fair market value at the lease inception date. Public domain general fixed assets or infrastructure are not capitalized.

The cost of normal maintenance and repairs that do not add to the value of the asset or materially extend asset lives are not capitalized. Improvements are capitalized and depreciated over the remaining useful lives of the related fixed assets.

5. Compensated Absences

It is the City's policy to permit employees to accumulate earned but unused vacation and sick pay benefits. No liability is reported for unpaid accumulated sick leave. Vacation pay is accrued when incurred in proprietary funds and reported as a fund liability. Vacation pay associated with governmental funds are accrued and reported in the general long-term debt account group. No expenditure is reported for these amounts.

6. Long-term Obligations

The City reports long-term debt of the governmental funds at face value in the general long-term debt account group. Certain other governmental fund obligations not expected to be financed with current available financial resources are also reported in the general long-term debt account group. Long-term debt and other obligations financed by proprietary funds are reported as liabilities in the appropriate funds.

7. Fund Equity

Reservations of fund balance represent amounts that are not appropriable or are legally segregated for a specific purpose. Reservations of retained earnings are limited to outside third-party restrictions. Designations of fund balance represent tentative management plans that are subject to change. The proprietary fund's contributed capital represents equity acquired through capital grants and capital contributions from developers, customers or other funds.

8. Use of Estimates

The preparation of financial statements in conformity with *Generally Accepted Accounting Principles* require management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results may differ from those estimates.

9. Memorandum Only – Total Columns

Total columns on combined statements are captioned "Memorandum Only" to indicate that they are presented only to facilitate financial analysis. Data in these columns is not intended to and does not present financial position in conformity with generally accepted accounting principles, neither is such data comparable to a consolidation. Interfund eliminations have not been made in the aggregation of this data.

10. Comparative Data/Reclassifications

Comparative total data for the prior year have been presented in selected sections of the accompanying financial statements in order to provide an understanding of the changes in the City's financial position and operations.

11. Bond Discounts/Premiums/Issuance Costs

For governmental fund types, bond premiums and discounts, as well as issuance costs, are recognized during the current period. Bond proceeds are reported as other financing sources net of the applicable premium or discount. For proprietary funds, bond premiums and discounts, as well as issuance costs, are deferred and amortized over the life of the bonds using the effective interest method. Issuance costs are reported on the balance sheet as "Net Bond Issue Costs" and "Net bond Premium."

STEWARDSHIP, COMPLIANCE AND ACCOUNTABILITY

A. BUDGETARY INFORMATION

Budgetary procedures for the City have been established by Utah State statute in the Fiscal Procedures Act for Utah Cities. The basis of accounting applied to each fund budget is the same basis as the related fund's financial statements. In accordance with State law, all appropriations lapse at the end of the budget year. Accordingly, no encumbrances are recorded. At its option, the City may permit its expenditure accounts to remain open for a period of 30 days after the close of its fiscal year for the payment of approved invoices for goods received or services rendered prior to the close of the fiscal year.

The City prepares a budget for each fund including the operation of the enterprise funds.

Under Utah Code, the City's budget establishes maximum legal authorization for expenditures during the fiscal year. Expenditures are not to exceed the budgeted amounts, including revisions, except as allowed by the Code for certain events.

B. AREAS OF NON-COMPLIANCE

Deficit Equity Balances

The following had deficit equity balances at June 30, 2002:

Special Revenue Funds	
Redevelopment Agency - Downtown	$ (180,946)
Redevelopment Agency - Business Park	(3,029,838)

Enterprise Fund	
Golf	$ (126,474)

Expenditures in Excess of Budget

State law requires that departmental expenditures be kept within budgeted amounts. The following departments exceeded budget as of June 30, 2002, by the following amounts:

Fund/Department	Amount
General Fund:	
Youth Sports	$ 2,989
Snack Shack	2,069

Fund Balance in Excess

The General Funds fund balance exceeded the maximum allowed by State Code and the Electric Fund had a deficit retained earnings, which is against State Code.

DETAILED NOTES ON ALL FUNDS AND ACCOUNT GROUPS

A. CASH AND INVESTMENTS

The City maintains a cash and investment pool that is available for use by all funds. In addition, investments are separately held by several of the City funds. As of June 30, 2002 and 2001 the City's carrying amount of deposits was $(914,636) and $(889,653) and the bank balance was $93,268 and $89,214, receptively. Of the bank balance, $93,268 and $89,214 was covered by Federal Depository Insurance. Deposits are not collateralized nor are they required to be by State statute.

The City follows the requirements of the Utah Money Management Act (Utah Code Annotated 1953, Section 51, Chapter 7) in handling its depository and temporary investment transactions. This law requires the depositing of City funds in a "qualified depository." The Act defines a "qualified depository" as any financial institution whose deposits are insured by an agency of the federal government and which has been certified by the Commissioner of Financial Institutions as meeting the requirements of the Act and adhering to the rules of the Utah Money Management Council.

The Act also defines the types of securities allowed as appropriate temporary investments for the City and the conditions for making investment transactions. Investment transactions are to be conducted through qualified depositories or primary reporting dealers.

Certain assets are restricted by provisions of the revenue bond resolutions. The resolutions also describe how these restricted assets may be deposited and invested. Restricted cash may only be deposited in state or national banks meeting certain minimum net worth requirements or invested in

securities representing direct obligations of or obligations guaranteed by the U.S. government, agencies of the U.S. government, any state within the territorial United States of America, repurchase agreements or interest bearing time deposits with state or national banks meeting certain minimum net worth requirements, or certain other investments.

The Utah Public Treasurers' Investment Fund (UPTIF) is an external deposit and investment pool wherein governmental entities are able to pool the monies from several entities to improve investment efficiency and yield. UPTIF is not registered with the SEC as an investment company. The PTIF is authorized and regulated by the Utah Money Management Act. The Act establishes the Money Management Council, which oversees the activities of the State Treasurer and the UPTIF. The Act details the investments that are authorized which are high-grade securities and, therefore, there is very little credit risk except in the most unusual and unforeseen circumstances. The UPTIF operates and reports to participants on an amortized cost basis. The income, gains, and losses, net of administration fees, of the UPTIF are allocated to participants on the ratio of the participant's average daily balance.

The City's investments are categorized as follows to give an indication of the level of risk assumed by the entity at year-end. Category 1 includes investments that are insured or registered or for which the securities are held by the City or its agent in the City's name. Category 2 includes uninsured and unregistered investments for which the securities are held by the broker's or dealer's trust department or agent in the City's name. Category 3 includes uninsured and unregistered investments for which the securities are held by the broker or dealer, or by its trust department or agency, but not in the City's name.

	Category and Balance			Market Value And Carrying Amount
	1	2	3	
Investments:				
Cash Management	$	$ 187,797	$	$ 187,797
U.S. Treasury Bills	1,848,603			1,848,603
Total	$ 1,848,603	$ 187,798	$	$ 2,036,400

Investments not subject to categorization at June 30, 2002, were as follows:	
Investments in Utah State Treasurers' Investment Fund	6,322,547
Total Investments	$ 8,358,947

Reconciliation of Cash and Investments note to the Combined Balance Sheet:	
Per Cash and Investments Note:	
Total Investments	$ 8,358,947
Cash on Hand	1,000
City Deposits	(914,626)
Total	$ 7,445,321

Per Combined Balance Sheet:	
Cash and Cash Equivalents	$ 1,852,755
Restricted Assets:	
Cash and Cash Equivalents	5,592,566
Total	$ 7,445,321

B. *INTERFUND RECEIVABLES AND PAYABLES*

Cash from the various funds is pooled together into one or more pool accounts. When a fund overdraws its share of pooled cash, an interfund payable is reported as well as an interfund receivable. The due to and due from account balances at June 30, 2002, were as follows:

	Due From Other Funds	Due To Other Funds
General	$1,978,498	$
Special Revenue-RDA Downtown		180,946
Special Revenue-RDA Business Park		1,908,888
Special Revenue-CDBG	12	
Special Revenue-Impact Fees-Parks	8,810	
Debt Service	5,442	
Capital Project		516,373
Enterprise-Water		82,869
Enterprise-Electric	855,925	
Enterprise-Sewer	506,771	
Enterprise-Solid Waste	271,863	
Enterprise-Golf		1,060,607
Enterprise – Storm Water	33,203	
Enterprise-Ambulance	5,885	
Internal Service	75,931	
Non-Expendable Trust-Revolving Loan	7,810	
Non-Expendable Trust-Perpetual Care	-	467
Total	$3,744,708	$3,744,708

C. *GENERAL FIXED ASSETS*

The following is a summary of the fixed assets and accumulated depreciation of the enterprise funds at June 30, 2002.

	Balance June 30, 2002	Accumulated Depreciation	Net of Depreciation
Land	$ 6,964,444	$	$ 6,964,444
Buildings and Improvements	249,640	125,896	123,744
Improvements Other Than Buildings	36,862,302	16,731,781	20,130,521
Machinery and Equipment	3,264,792	1,963,299	1,301,493
Construction in Progress	6,313,601		6,313,601
	$53,654,779	$18,820,976	$34,833,803

Activity in General Fixed Assets Account Group was as follows:

	Balance July 1, 2001	Additions	Deletions	Adjustments	Balance June 30, 2002
Land	$ 2,135,545	$ 1,059,076	$ (60,960)	$ -	$ 3,133,661
Buildings	1,399,466	659,792	(222,281)	172	2,059,430
Improvements Other Than Building	1,134,503	1,163,814		24,786	2,323,102
Machinery and Equipment	1,659,256	91,571		(474,404)	1,054,142
Construction in Progress	-	51,845	-	-	51,845
Total	$ 6,328,770	$ 3,026,098	$ (283,241)	$ (449,447)	$ 8,622,180

D. *LONG-TERM DEBT*

Revenue and general obligation bonds outstanding at June 30, 2002, were as follows:

	Interest Rate	Maturity Date	Balance
Enterprise Fund			
Pressurized Irrigation Revenue Bonds dated March 1, 1991 (original amount $3,600,000)	5.00%	2017	$ 2,803,000
Water Revenue Bonds, Series 1995, dated March 1, 1996 (original amount $375,000)	5.00%	2007	217,000

Water Revenue Bonds, Series 1996, dated March 1, 1997 (original amount $485,000)	5.00%	2007	294,000
Electric Revenue Refunding Bonds, Series 1999, dated January 4, 1999 (original amount $5,125,000)	3.00% to 4.20%	2008	3,770,000
Sewer Revenue Bonds, Series 2001, dated August 21, 2001 (original amount $7,479,000)	4.00%	2022	7,479,000
Special Revenue Fund - RDA Tax Increment Revenue Bonds, Series 1998, dated March 1, 1997 (original amount $1,130,000)	5.15%	2011	1,000,000
Total Bonds Payable			$ 15,563,000

The bond ordinance for the general obligation sewer and water bonds provides for the establishment of certain accounts and reserves, and further provides that all revenues of the water, electric and sewer systems are to be used initially for payment of operation and maintenance costs of the system, principal and interest on the bonds, and establishment of certain defined debt repayment reserves. Any monies available after such application may be used at the discretion of the City Council.

Notes Payable as of June 30, 2002 were as follows:

Special Revenue Fund – RDA	Interest Rate	Maturity Date	Balance
Thompson Note, $21,145 annually	8%	2006	$ 69,837
Spencer Note, $16,012 annually	8%	2006	42,530
Total Notes Payable			$112,367

BOND ANTICIPATION NOTE

During the fiscal year ended June 30, 2002, the City obtained a bond anticipation note for the purchase of land in the amount of $5,940,000. The note is due May 1, 2003 at which time the City expects to issue a bond to pay of the note.

SPECIAL IMPROVEMENT DISTRICT BOND

The City issued $1,215,000 and $2,500,000 of special assessment bonds in 2001 and 2002 to provide funds for the payment of work performed at the Business Park and Pit property, respectively. The bonds have a rate of interest between 4.5% and 5.8% with a maturity date of 2009 and 2016, respectively. The debt has been assessed to the property owners with no government commitment for the $1,215,000 bonds and with government commitment for the $2,500,000 bonds. The City is responsible for the collection of assessments and the deposit of the funds in a bond escrow account for payment of the bonds.

DEBT REPAYMENT REQUIREMENTS

The annual requirements to amortize all bonded debt outstanding as of June 30, 2002, including interest, are as follows:

Year	Revenue Bonds		Tax Increment		Notes Payable	
Ended	Principal	Interest	Principal	Interest	Principal	Interest
2003	$ 1,090,000	$ 657,849	$ 60,000	$ 51,500	$ 28,655	$ 8,989
2004	1,157,000	611,490	70,000	48,410	30,935	6,709
2005	1,215,000	561,692	80,000	44,805	33,432	4,222
2006	1,269,000	509,033	85,000	40,685	19,345	1,547
2007	1,318,000	453,526	85,000	36,308		
2008 to 2012	3,772,000	1,654,190	500,000	110,725		
2013 to 2017	3,293,000	921,640	120,000	6,180		
2018 to 2022	2,449,000	301,600	-	-		
Total	$ 15,563,000	$ 5,671,020	$ 1,000,000	$ 338,613	$ 112,367	$ 21,467

ADVANCED REFUNDING OF ELECTRIC REVENUE BONDS

In February of 1999, the City issued $5,125,000 in Electric Revenue Refunding Bonds, Series 1999 for the purpose of providing funds to refund in advance of their maturity all of the City's outstanding Electric Power Revenue Bonds, Series 1993A, outstanding in the aggregate principal amount of $2,980,000, Electric Power Revenue Refunding Bonds, Series 1988 outstanding in the aggregate principal amount of $2,085,000, and obligations of the Financing Agreement dated as of August 1, 1990 by and between the City and the Utah Municipal Finance Cooperative securing the Utah Municipal Finance Local Government Revenue Bonds, Series August 1, 1990, Payson City, Utah Electric Power Revenue Bonds outstanding in the aggregate principal amount of $365,000. The balance of the proceeds of the 1999 Bonds were used to pay certain bond issuance expenses.

The City advance refunded the Series 1993A, 1988, and August 1, 1990 Bonds to reduce its total debt service payments over the next eight years by $982,520 and to obtain an economic gain (difference between the present values of the debt service payments on the old debt and the new debt) of $782,781.

SUMMARY OF CHANGES IN GENERAL LONG-TERM DEBT

	Balance July 1, 2001	Issued/ Increased	Retired/ Decreased	Balance June 30, 2002
Compensated Absences Payable	$ 294,110	$	$ (2,877)	$291,233
Special Improvement District	1,125,000	2,500,000	(227,000)	3,398,000
Total General Long-Term Debt	$1,419,110	$2,500,000	$(229,877)	$3,689,233

E. *CAPITALIZED LEASES PAYABLE*

Capital Lease Agreements - Enterprise and Internal Service Funds

The City leases various equipment through capital leasing arrangements in the proprietary fund types. The assets and obligations for the agreements are recorded in the proprietary funds directly. Amortization applicable to proprietary fund assets acquired through capital lease arrangements are included with depreciation in the financial statements of the City. The assets acquired through capital leases are as follows:

	Proprietary Fund Types
Caterpillar	$ 196,525
Grinder/Screen/Loader	500,500
Golf Carts and Equipment	165,640
Mower	55,615
Subtotal	918,280
Accumulated Depreciation	(146,721)
Total	$ 771,559

The following is a schedule of the future lease payments under the capitalized leases as of June 30, 2002:

Enterprise Funds:

Year Ending	Solid Waste Fund		Golf Fund		
	Caterpillar	Grinders/ Screen	Golf Carts/ Equipment	Mower	Total
2003	$ 41,532	$ 66,580	$ 50,412	$12,887	$ 171,411
2004	45,308	66,580	33,626	12,887	158,401
2005	45,308	66,580	29,206	12,887	153,981
2006	7,551	66,580	14,732	2,148	91,011
2007	-	66,580	13,505	-	80,085
Thereafter	-	225,408	-	-	225,408
Total	139,699	558,308	141,481	40,809	880,297
Less Interest Portion	(11,943)	(120,734)	(10,463)	(3,700)	(146,840)
Net Lease Payments	127,756	437,574	131,018	37,109	733,457
Less Current Portion	(38,989)	(41,597)	(45,738)	(10,976)	(137,300)
Long-Term Portion	$ 88,767	$395,977	$ 85,280	$26,133	$ 596,157

F. CONTRIBUTED CAPITAL

The changes in contributed capital for the water fund were as follows:

	Water	Pressurized Irrigation	Annexation Fees	Irrigation	Total
Balance at July 1, 2001	$ 1,873,697	$ 60,310	$ 227,802	$ 13,854	$ 2,175,663
Adjustments	46,945	-	-	-	46,945
Balance at June 30, 2002	$ 1,920,642	$ 60,310	$ 227,802	$ 13,854	$ 2,222,608

The changes in contributed capital for the remaining enterprise funds were as follows:

	Electric	Sewer	Solid Waste	Golf	Ambulance
Balance at July 1, 2001	$ 864,114	$ 1,558,977	$ 258,705	$ 25,900	$ 82,702
Adjustments	-	-	-	-	-
Balance at June 30, 2002	$ 864,114	$ 1,558,977	$ 258,705	$ 25,900	$ 82,702

V. OTHER INFORMATION

A. *RISK MANAGEMENT*

The City is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; injuries to employees; and natural disasters. The City has purchased a comprehensive general liability insurance policy for public entities through the Utah Local Governments Trust. The City pays premiums to this trust for comprehensive general liability and automobile liability insurance coverage. The City is subject to a minimal deductible for claims covered. The City also pays premiums to the Trust for workers compensation coverage.

B. *SEGMENT INFORMATION - ENTERPRISE FUNDS*

Payson City maintains six enterprise funds. The Water, Electrical, Sewer, Solid Waste, Storm Drain, Golf, and Ambulance Funds account for the operational revenues and expenses of the various public services with regards to the distribution and collection of the related service. Selected segment information for the year ended June 30, 2002, is as follows:

	Water	Electric	Sewer	Solid Waste
Operating Revenues	$1,960,296	$9,507,434	$1,630,355	$1,433,948
Depreciation	255,949	368,104	179,463	97,571
Operating Income	1,144,980	1,395,500	1,029,807	452,971
Net Income	431,018	1,195,767	202,695	(99,002)
Net Working Capital	813,352	2,012,922	1,868,312	805,537

Fixed Asset Additions	605,406	627,944	5,553,799	376,638
Total Assets	15,185,927	11,320,290	12,261,422	2,020,386
Bonds Payable	3,314,000	3,770,000	6,000,000	
Total Equity	5,592,628	7,002,531	6,102,209	928,657

	Storm Water	Golf	Ambulance
Operating Revenues	$251,880	$597,893	$149,911
Depreciation	29,647	118,462	37,120
Operating Income	13,420	(47,993)	7,968
Net Income	11,420	(58,740)	35,282
Net Working Capital	82,434	(1,175,805)	77,563
Fixed Asset Additions	69,275	139,230	7,920
Total Assets	538,560	1,186,646	197,008
Bonds Payable			
Total Equity	537,952	(100,574)	195,298

C. *PAYSON CITY REDEVELOPMENT AGENCIES*

The State of Utah requires the following information of the Redevelopment Agencies to be reported in the financial statements:

Activity in the Downtown Redevelopment Agency as of June 30, 2002, was as follows:

Tax Increment Collected	$ 119,301
Tax increment Paid to Another Taxing Entity	-
Proceeds from Sale of Assets	-
Outstanding Bonds or Loans of the Agency	-
Amount Expended for:	
Acquisition of Property	-
Site Improvements	29,997
Installation of Utilities	-
Administrative Costs	-

Activity in the Business Park Redevelopment Agency as of June 30, 2002, was as follows:

Tax Increment Collected	$ 222,427
Tax increment Paid to Another Taxing Entity	-
Proceeds from Sale of Assets	-
Outstanding Bonds or Loans of the Agency	1,112,367
Amount Expended for:	
Acquisition of Property	36,645
Site Improvements	178,811
Installation of Utilities	-
Administrative Costs	-

D. RETIREMENT PLANS

Local Governmental - Cost Sharing Defined Benefits Pension Plans

Plan Description. The City contributes to the Local Governmental Noncontributory Retirement System (Noncontributory System), and the Public Safety Retirement System (Public Safety System) for employers with (without) Social Security coverage, all of which are cost-sharing, multiple-employer defined benefit pensions plans administered by the Utah Retirement Systems (Systems). The Systems provide, retirement benefits, annual cost of living allowances, death benefits and refunds to plan members and beneficiaries in accordance with retirement statutes established and amended by the State Legislature.

The Systems are established and governed by the respective sections of Chapter 49 of the Utah Code Annotated 1953 (Chapter 49) as amended, which also establishes the State Retirement Office (Office) for the administration of the Utah retirement Systems and Plans. Chapter 40 places the Systems, the Office and related plans and programs under the direction of the Utah State Retirement Board (Board) whose members are appointed by the Governor. The Systems issue a publicly available financial report that includes financial statements and required supplementary information for the Systems and Plans. A copy of the report may be obtained by writing to the Utah Retirement Systems, 540 East 200 South, Salt Lake City, Utah 84102 or by calling 1-800-365-8772.

Funding Policy. The City is required to contribute a percentage of covered salary to the respective systems, 8.2% to the Noncontributory, and 14.08% to the Public Safety Noncontributory. The contribution rates are the actuarially determined rates and are approved by the Board as authorized by Chapter 49.

The City contributions to the various systems for the years ending June 30, 2002, 2001, and 2000 were; for the Noncontributory System $193,216, $235,682, and $231,321; and for the Public Safety Noncontributory, $81,399, $102,110 and $108,714, respectively. The contributions were equal to the required contributions for each year.

401(k) Plan

The employees of Payson City also participate in a 401(k) deferred compensation plan. The amount of the employer contributions for the year ended June 30, 2002, 2001, and 2000, were $29,111, $2,819, and $0, respectively.

E. JOINT VENTURE

Payson City is a member of Utah Associated Municipal Power Systems (UAMPS), a separate legal entity and political subdivision of the State of Utah, which was formed pursuant to the provision of the Interlocal Cooperation Act. UAMPS' membership consists of 31 municipalities, including one joint action agency and one electric service district. In addition, one contract purchaser of power is also supplied by UAMPS. UAMPS was formed to plan, finance, develop, acquire, construct, improve, operate, or maintain projects for the generation, transmission, and distribution of electric energy for the benefit of its members.

The City is a 19.99 percent participant in the operation of a joint agency project (Craig-Mona Transmission Project). As a participant in the project, Payson City is obligated for 19.99 percent of the debt service on approximately $6,875,000 in bonds outstanding at June 30, 2002, (or $1,374,505), issued to finance the acquisition of the project. Under the terms of the agreement, the operational costs and debt service requirements are reflected in the cost of power purchased. No separate payments are made to UAMPS under this agreement.

Separate compiled financial statements for UAMPS may be obtained from the Manager of Finance at 2825 East Cottonwood Parkway, Suite 200, Salt Lake City, Utah 84121-7077.

F. LANDFILL CLOSURE AND POSTCLOSURE CARE COST

State and Federal laws and regulations require the City to place a final cover on its landfill site when it stops accepting waste and to perform certain maintenance and monitoring functions at the site for thirty years after closure. Although closure and postclosure care costs will be paid only near or after the date that the landfill stops accepting waste, the City reports a portion of these closure and postclosure care costs as an operating expense in each period based on landfill capacity used as of each balance sheet date. The $491,928 reported as landfill closure and postclosure care liability at June 30, 2002, represents the cumulative amount reported to date based on the use of 41.00 percent of the estimated capacity of the landfill. The City will recognize the remaining estimated cost of closure and postclosure care of $1,201,675 as the remaining estimated capacity is filled. The amounts are based on what it would cost to perform all closure and postclosure care in 2002. The City expects to close the landfill in the year 2031. Actual cost may be higher due to inflation, changes in technology, or changes in regulations.

The City is making annual contributions to a trust to finance closure and postclosure care. At June 30, 2002, investments of $268,921 were held for these purposes. These contributions are reported as restricted assets on the balance sheet. The City expects that future inflation costs will be paid from interest earnings on these annual contributions. However, if interest earnings are inadequate or additional postclosure care requirements are determined (due to changes in technology or applicable laws or regulations, for example), the costs may need to be covered by charges to future landfill users or from future tax revenue.

CITY OF PAYSON, UTAH
COMBINING BALANCE SHEET--SPECIAL REVENUE FUNDS
JUNE 30, 2002
(With Comparative Totals for June 30, 2001)

	Redevelopment Agencies		Impact Fees		Totals	
	Downtown	Business Park	Parks	CDBG Grant	2002	2001
ASSETS						
Cash and Cash Equivalents	$	$	$	$	$	$
Due From Other Funds			8,810	12	8,822	
Restricted Assets:						
Cash and Cash Equivalents			98,990	6	98,996	239,993
TOTAL ASSETS	$		$ 107,800	$ 18	$ 107,818	$ 239,993
LIABILITIES AND EQUITY						
LIABILITIES						
Accounts Payable	$	$	$	$		$ 162,354
Interest Payable		8,583			8,583	9,013
Due to Other Funds	180,946	1,908,888			2,089,834	2,048,390
Note Payable		112,367			112,367	137,973
Bond Payable		1,000,000			1,000,000	1,050,000
TOTAL LIABILITIES	180,946	3,029,838			3,210,784	3,407,730
EQUITY						
Fund Balances:						
Reserved for:						
Impact Fees			107,800		107,800	146,019
Grant Funds				18	18	
Unreserved (Deficit)	(180,946)	(3,029,838)			(3,210,784)	(3,313,756)
TOTAL EQUITY	(180,946)	(3,029,838)	107,800	18	(3,102,966)	(3,167,737)
TOTAL LIABILITIES AND EQUITY	$	$	$ 107,800	$ 18	$ 107,818	$ 239,993

CITY OF PAYSON, UTAH
COMBINING STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCES--SPECIAL REVENUE FUNDS
YEAR ENDED JUNE 30, 2002
(With Comparative Totals for the Year Ended June 30, 2001)

	Redevelopment Agencies		Impact Fees		Totals	
	Downtown	Business Park	Parks	CDBG Grant	2002	2001
REVENUES						
Taxes	$ 119,301	$ 222,427	$	$	$ 341,728	$ 271,285
Intergovernmental Revenues				52,389	52,389	
Interest			3,725		3,725	11,168
Miscellaneous		40,323			40,323	4,000
TOTAL REVENUES	119,301	262,750	3,725	52,389	438,165	286,453
EXPENDITURES						
Community and Economic Development						1,629
Capital Outlay	29,997	215,456	159,192	52,371	457,016	601,861
Debt Service:						
Bond Retirement						50,000
Interest		33,626			33,626	39,584
TOTAL EXPENDITURES	29,997	249,082	159,192	52,371	490,642	693,074
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	89,304	13,668	(155,467)	18	(52,477)	(406,621)
OTHER FINANCING SOURCES (USES)						
Operating Transfers In						16,005
Impact Fees			117,248		117,248	175,314
Operating Transfers Out						(16,000)
TOTAL OTHER FINANCING SOURCES (USES)			117,248		117,248	175,319
EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	89,304	13,668	(38,219)	18	64,771	(231,302)
FUND BALANCE (Deficit)--JULY 1	(270,250)	(3,043,506)	146,019		(3,167,737)	(2,936,435)
FUND BALANCE (Deficit)--JUNE 30	($ 180,946)	($ 3,029,838)	$ 107,800	$ 18	($ 3,102,966)	($ 3,167,737)

CITY OF PAYSON, UTAH
COMBINING STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES–BUDGET AND ACTUAL–
SPECIAL REVENUE FUNDS
YEAR ENDED JUNE 30, 2002

	Redevelopment Agencies						Impact Fees								
	Downtown			Business Park			Park			CDBG Grant			Totals		
	Budget	Actual	Variance–Favorable (Unfavorable)	Budget	Actual	Variance–Favorable (Unfavorable)	Budget	Actual	Variance–Favorable (Unfavorable)	Budget	Actual	Variance–Favorable (Unfavorable)	Budget	Actual	Variance–Favorable (Unfavorable)
REVENUES															
Taxes	$ 119,300	$ 119,301	$ 1	$ 222,427	$ 222,427	$	$	$	$	$	$	$	$ 341,727	$ 341,728	$
Intergovernmental Revenues											52,389	52,389		52,389	52,389
Interest							3,753	3,725	(28)				3,753	3,725	(28)
Miscellaneous				40,000	40,323	323							40,000	40,323	323
TOTAL REVENUES	119,300	119,301	1	262,427	262,750	323	3,753	3,725	(28)		52,389	52,389	385,480	438,165	52,684
EXPENDITURES															
Capital Outlay	33,559	29,997	3,562	426,000	215,456	210,544	227,000	159,192	67,808		52,371	52,371	686,559	457,016	229,543
Debt Service:															
Bond and Note Retirement				60,000		60,000							60,000		60,000
Interest				47,160	33,626	13,534							47,160	33,626	13,534
TOTAL EXPENDITURES	33,559	29,997	3,562	533,160	249,082	284,078	227,000	159,192	67,808		52,371	52,371	793,719	490,642	303,077
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	85,741	89,304	3,563	(270,733)	13,668	284,401	(223,247)	(155,467)	67,780		18	104,760	(408,239)	(52,477)	355,761
OTHER FINANCING SOURCES AND (USES)															
Impact Fees							163,000	117,248	(45,752)				163,000	117,248	(45,752)
TOTAL OTHER FINANCING SOURCES (USES)							163,000	117,248	(45,752)				163,000	117,248	(45,752)
EXCESS (DEFICIENCY) OF REVENUE AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES OF FUNDS	$ 85,741	89,304	$ 3,563	($ 270,733)	13,668	$ 284,401	($ 60,247)	(38,219)	$ 22,028	$	18	$	($ 245,239)	64,771	$ 310,009
FUND BALANCE–JULY 1, 2001		(270,250)			(3,043,506)			146,019						(3,167,737)	
FUND BALANCE–JUNE 30, 2002		($ 180,946)			($ 3,029,838)			$ 107,800			$ 18			($ 3,102,966)	

CITY OF PAYSON, UTAH
COMBINING STATEMENT OF REVENUES, EXPENSES,
AND CHANGES IN RETAINED EARNINGS--ENTERPRISE FUNDS
YEAR ENDED JUNE 30, 2002
(With Comparative Totals for the Year Ended June 30, 2001)

	Water	Electric	Sewer	Solid Waste	Golf	Storm Water	Ambulance	Totals 2002	Totals 2001
OPERATING REVENUES									
Charges for Services	$ 1,365,139	$ 9,153,188	$ 1,156,145	$ 1,417,842	$ 597,730	$ 245,625	$ 149,911	$ 14,085,580	$ 11,141,335
Impact Fees	343,898	171,055	444,863					959,816	1,523,385
Miscellaneous	251,259	183,191	29,347	16,106	163	6,255		486,321	95,189
TOTAL OPERATING REVENUES	1,960,296	9,507,434	1,630,355	1,433,948	597,893	251,880	149,911	15,531,717	12,759,909
OPERATING EXPENSES									
Power Purchases		3,809,377						3,809,377	2,946,601
Salaries and Wages	240,400	743,074	189,856	189,360	261,879	84,613	54,555	1,763,737	1,642,239
Employee Benefits	117,945	355,456	89,456	88,745	110,825	34,747	15,997	813,171	741,150
Materials and Supplies	139,378	2,345,609	19,377	42,772	110,465	5,612	15,382	2,678,595	1,651,578
Repairs and Maintenance	35,675	381,350	31,873	93,442	17,405	28,566	1,264	589,575	272,577
Depreciation	255,949	368,104	179,463	98,571	118,462	29,647	37,120	1,087,316	1,177,488
Amortization	1,009	11,823						12,832	12,832
Utilities and Telephone	9,877	7,330	25,128	3,107	21,089		3,182	69,713	71,397
Travel and Training	3,861	1,264	3,479	1,128	771	5,400	10,395	26,298	17,863
Professional Services	11,222	11,892	61,916	50,279	4,990	49,875	3,276	193,450	237,077
Contracted Services		32,257						32,257	26,990
Closure and Postclosure Costs				413,573				413,573	23,812
Sundry Charges		44,398					772	45,170	27,185
TOTAL OPERATING EXPENSES	815,316	8,111,934	600,548	980,977	645,886	238,460	141,943	11,535,064	8,848,789
OPERATING INCOME (LOSS)	1,144,980	1,395,500	1,029,807	452,971	(47,993)	13,420	7,968	3,996,653	3,911,120
NON-OPERATING REVENUES (EXPENSES)									
Interest Income	28,667	79,808	46,486	7,607				162,568	219,841
Interest Expense	(457,364)	(183,913)	(170,388)					(811,665)	(471,875)
Grant Revenue									9,437
Gain (Loss) on Sale of Fixed Assets	(15,352)	(34,816)	(5,895)	(10,307)	(10,747)		(4,201)	(81,318)	(247)
TOTAL NON-OPERATING REVENUES (EXPENSES)	(444,049)	(138,921)	(129,797)	(2,700)	(10,747)		(4,201)	(730,415)	(242,844)
INCOME (LOSS) AFTER NON-OPERATING REVENUES (EXPENSES)	700,931	1,256,579	900,010	450,271	(58,740)	13,420	3,767	3,266,238	3,668,276
OTHER FINANCING SOURCES (USES)									
Operating Transfers In	180,000	707,293					31,515	918,808	574,300
Operating Transfers Out	(449,913)	(768,105)	(697,315)	(549,273)		(2,000)		(2,466,606)	(2,396,258)
TOTAL OTHER FINANCING SOURCES (USES)	(269,913)	(60,812)	(697,315)	(549,273)		(2,000)	31,515	(1,547,798)	(1,821,958)
NET INCOME (LOSS)	431,018	1,195,767	202,695	(99,002)	(58,740)	11,420	35,282	1,718,440	1,846,318
RETAINED EARNINGS--JULY 1	2,939,002	4,942,650	4,340,537	768,954	(67,734)	526,532	77,314	13,527,255	11,680,937
RETAINED EARNINGS--JUNE 30	$ 3,370,020	$ 6,138,417	$ 4,543,232	$ 669,952	($ 126,474)	$ 537,952	$ 112,596	$ 15,245,695	$ 13,527,255

CITY OF PAYSON, UTAH
COMBINING STATEMENT OF CASH FLOWS--ENTERPRISE FUNDS
YEAR ENDED JUNE 30, 2002
(With Comparative Totals for the Year Ended June 30, 2001)

	Water	Electric	Sewer	Solid Waste	Golf	Storm Water	Ambulance	Totals 2002	Totals 2001
CASH FLOWS FROM OPERATING ACTIVITIES									
Operating Income (Loss)	$ 1,144,980	$ 1,395,500	$ 1,029,807	$ 452,971	($ 47,993)	$ 13,420	$ 7,968	$ 3,996,653	$ 3,911,120
Noncash Revenue and Expense									
Adjustments to Reconcile Operating Income to Net Cash Provided by Operating Activities:									
Depreciation and Amortization	256,958	379,927	179,463	98,571	118,462	29,647	37,120	1,100,148	1,190,320
Decrease (Increase) in Accounts Receivable	(11,675)	58,050	(16,942)	(125,200)		(4,090)	44,551	(55,306)	(270,528)
Decrease (Increase) in Amounts Due From Other Funds	(77,836)	(140,967)	(44,250)	125,017		23,651	(5,885)	(120,270)	437,865
Increase (Decrease) in Customer Deposits		(80,632)						(80,632)	72,560
Increase (Decrease) in Accounts Payable									(12,182)
Increase (Decrease) in Accued Liabilites		(28,776)						(28,776)	4,505
Increase (Decrease) in Compensated Absences	6,046	22,720	2,514	2,012	848	608		34,748	17,004
Increase in Closure and Postclosure Care				413,573				413,573	23,813
Increase (Decrease) in Amounts Due to Other Funds					(12,483)		(20,942)	(33,425)	(22,072)
Increase (Decrease) in Allowance for Doubtful Accounts		(4,327)						(4,327)	27,600
Increase (Decrease) in Water Share Liability	35,055							35,055	56,082
Increase (Decrease) in Accrued Interest Payable	(3,283)	(6,631)	124,650					114,736	(21,372)
NET CASH FLOWS PROVIDED (USED) BY OPERATING ACTIVITIES	1,350,245	1,594,864	1,275,242	966,944	58,834	63,236	62,812	5,372,177	5,414,715
CASH FLOWS FROM NON-CAPITAL AND RELATED FINANCING ACTIVITIES									
Operating Transfers In	180,000	707,293					31,515	918,808	574,300
Operating Transfers Out	(449,913)	(768,105)	(697,315)	(549,273)		(2,000)		(2,466,606)	(2,396,258)
Grant Revenue									9,437
NET CASH PROVIDED (USED) BY NON-CAPITAL AND RELATED FINANCING ACTIVITIES	(269,913)	(60,812)	(697,315)	(549,273)		(2,000)	31,515	(1,547,798)	(1,812,521)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES									
Payments on Bonds	(197,000)	(545,000)	(355,000)					(1,097,000)	(1,102,000)
Payments on Capital Leases	(135,280)			(79,021)	(35,004)		(83,746)	(333,051)	(405,227)
Interest Paid on Debt	(457,364)	(183,913)	(170,388)					(811,665)	(471,875)
Acquisition of Property and Equipment	(605,406)	(627,944)	(5,553,799)	(376,638)	(139,230)	(69,275)	(7,920)	(7,380,212)	(8,617,335)
Proceeds from Loans			6,000,000					6,000,000	5,940,000
Proceeds from Sale of Assets									(247)
Proceeds from Capital Leases					115,400			115,400	904,850
NET CASH PROVIDED (USED) BY CAPITAL AND RELATED FINANCING ACTIVITIES	(1,395,050)	(1,356,857)	(79,187)	(455,659)	(58,834)	(69,275)	(91,666)	(3,506,528)	(3,751,834)
CASH FLOW FROM INVESTING ACTIVITIES									
Interest Income	28,667	79,808	46,486	7,607				162,568	219,841
NET CASH FLOWS PROVIDED BY INVESTING ACTIVITIES	28,667	79,808	46,486	7,607				162,568	219,841
NET INCREASE (DECREASE) IN CASH	(286,051)	257,003	545,226	(30,381)		(8,039)	2,661	480,419	70,201
CASH AT JULY 1	1,088,975	1,278,205	831,344	422,272		23,058		3,643,854	3,573,653
CASH AT JUNE 30	$ 802,924	$ 1,535,208	$ 1,376,570	$ 391,891	$	$ 15,019	$ 2,661	$ 4,124,273	$ 3,643,854

CITY OF PAYSON, UTAH
COMBINING BALANCE SHEET--
NON-EXPENDABLE TRUST AND AGENCY FUNDS
JUNE 30, 2002
(With Comparative Totals for June 30, 2001)

	Non-Expendable Trust Funds		Totals	
	Perpetual Care	Revolving Loans	2002	2001
ASSETS				
Cash and Cash Equivalents	$	$ 3,533	$ 3,533	$ 2,597
Due From Other Funds		7,810	7,810	8,033
Notes Receivable		118,037	118,037	31,070
Restricted Assets:				
Cash and Cash Equivalents	212,775	179,798	392,573	483,097
TOTAL ASSETS	$ 212,775	$ 309,178	$ 521,953	$ 524,797
LIABILITIES AND EQUITY				
LIABILITIES				
Due to Other Funds	$ 467		$ 467	$ 14,585
TOTAL LIABILITIES	467		467	14,585
EQUITY				
Fund Balance:				
Reserved for:				
Endowments	212,308		212,308	217,023
Revolving Loan		309,178	309,178	293,189
TOTAL EQUITY	212,308	309,178	521,486	510,212
TOTAL LIABILITIES AND EQUITY	$ 212,775	$ 309,178	$ 521,953	$ 524,797

CITY OF PAYSON, UTAH
COMBINING STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND BALANCE-- NON-EXPENDABLE TRUST FUNDS
YEAR ENDED JUNE 30, 2002
(With Comparative Totals for the Year Ended June 30, 2001)

	Non-Expendable Trust Funds		Totals	
	Perpetual Care	Revolving Loans	2002	2001
OPERATING REVENUES				
Charges for Services	$ 9,350	$	$ 9,350	$ 16,135
OPERATING EXPENSES				
OPERATING INCOME	9,350		9,350	16,135
NON-OPERATING REVENUE				
Interest Income	5,935	15,989	21,924	32,509
INCOME AFTER NON-OPERATING REVENUE	15,285	15,989	31,274	48,644
OTHER FINANCING SOURCES (USES)				
Operating Transfers Out	(20,000)		(20,000)	(20,000)
NET INCOME (LOSS)	(4,715)	15,989	11,274	28,644
FUND BALANCE--JULY 1	217,023	293,189	510,212	481,568
FUND BALANCE--JUNE 30	$ 212,308	$ 309,178	$ 521,486	$ 510,212

CITY OF PAYSON, UTAH
COMBINING STATEMENT OF CASH FLOWS--
NON-EXPENDABLE TRUST FUNDS
YEAR ENDED JUNE 30, 2002
(With Comparative Totals for the Year Ended June 30, 2001)

	Perpetual Care	Revolving Loans	Totals 2002	Totals 2001
CASH FLOWS FROM OPERATING ACTIVITIES				
Operating Income	$ 9,350	$	$ 9,350	$ 16,135
Decrease (Increase) in Notes Receivable		(86,965)	(86,965)	(21,643)
Decrease (Increase) in Due From Other Funds		(247)	(247)	827
Increase (Decrease) in Due to Other Funds	(14,118)		(14,118)	5,134
NET CASH FLOWS PROVIDED (USED) BY OPERATING ACTIVITIES	(4,768)	(87,212)	(91,980)	453
CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES				
Operating Transfers Out	(20,000)		(20,000)	(20,000)
NET CASH FLOWS PROVIDED (USED) BY NON-CAPITAL FINANCING ACTIVITIES	(20,000)		(20,000)	(20,000)
CASH FLOW FROM INVESTING ACTIVITIES				
Interest Income	5,935	15,989	21,924	32,509
NET CASH FLOWS PROVIDED (USED) BY INVESTING ACTIVITIES	5,935	15,989	21,924	32,509
NET INCREASE (DECREASE) IN CASH	(18,833)	(71,223)	(90,056)	12,962
CASH AT JULY 1	231,608	254,554	486,162	473,200
CASH AT JUNE 30	$ 212,775	$ 183,331	$ 396,106	$ 486,162

APPENDIX C

Landfill Operating Records

C-1	Pre-operation Checklist for Bulldozer
C-2	Ground Water Monitoring
C-3	Methane Sampling Log
C-4	Landfill Inspections
C-5	Landfill Maintenance
C-6	Sample Sheet of Operating Logbook
C-7	Recycling Permit
C-8	Asbestos Waste WSR
C-9	Waste Inspection Report

PAYSON CITY CORPORATION
CLASS V LANDFILL

Date:_____
Operator Signature:_____
Engine Hours:_____

PRE-OPERATION CHECKLIST
D7H BULLDOZER

Instructions: Please indicate with a check that the items identified below have been completed. If the item is not in the normal or operating range, indicate corrections taken or needed, to the right of the statement. List all maintenance performed and any comments you have in the sections provided.

1. _____ Check engine oil level.

2. _____ Check hydraulic system oil level.

3. _____ Check coolant fluid level.

4. _____ Check air filter.

5. _____ Lubricate at all grease fittings.

6. _____ Inspect belts and hoses.

7. _____ Inspect track, blade, ROP, rails, and ripper for loose fasteners, damage, lodged waste, etc.

Maintenance Performed : _____

_____

_____

_____

_____

_____

_____

_____

_____

Comments:_____

_____

_____

_____

_____

_____

PAYSON CITY CORPORATION
CLASS V LANDFILL

Date:_____
Operator Signature:_____
Ground Water Monitoring Well # :_____

GROUND WATER MONITORING

Instructions: Please fill in the requested information. Indicate in the comments section any abnormal conditions or events that occurred during the sampling process. Also note any maintenance or repair that may be needed.

1. Depth to static water level: _____

2. Approximate volume of water purged before sampling:_____

Purged Volume	**pH**	**Temp. (°C)**	**Specific Conductance (mS/cm)**	**Observation**

3. Control Number on sample bottle.

1. _____ 3._____
2. _____ 4._____

4. Laboratory to which sample bottles were sent for analysis:

Name: _____
Address: _____
_____
_____
Contact: _____

5. Method of sample shipment: _____
_____

6. Comments: _____
_____
_____
_____
_____
_____

PAYSON CITY CORPORATION
CLASS V LANDFILL

Date:_____
Operator Signature:_____
Probe # :_____

METHANE SAMPLING LOG

Instructions: Please fill in the date, number of the probe being sampled, and time sample was taken. List the sample results in the area provided. In the comments section, list any abnormal items found during the sampling or maintenance that needs to be completed.

Sample results : _____

Comments:_____

PAYSON CITY CORPORATION
CLASS V LANDFILL

Date:_____

Inspectors:_____

_____

LANDFILL INSPECTIONS

Instructions: Please fill in the requested information as outlined and check appropriate boxes. If changes in operation practices or maintenance are required, notify the Superintendent upon completion of the inspection. *Schedule a follow-up inspection after the time changes or repairs are to be made.*

1. Type/area of inspection: ☐ Routine ☐ Other (specify) _____

☐ Scales	☐ Scalehouse	☐ Run-on, run-off system
☐ Groundwater	☐ Methane gas	☐ Blown litter
☐ Access roads	☐ Fire breaks	☐ Gates/Fences/Signs
☐ Soil cover stockpile	☐ Topsoil Stockpile	☐ N. Side
☐ S. Side	☐ E. Side	☐ W. Side
☐ NE Corner	☐ SE Corner	☐ SW Corner
☐ NW Corner		

2. Results or findings of inspection: _____

_____
_____
_____
_____
_____
_____
_____

3. Recommendations: _____

_____
_____
_____
_____
_____

PAYSON CITY CORPORATION
CLASS V LANDFILL

Date:_____
Operator:_____

LANDFILL MAINTENANCE

Instructions: Check the appropriate box for the area or type of maintenance that was performed at the landfill. Describe the maintenance work completed in section 2.

1. Area or type of Maintenance (check appropriate box)

☐ Scales	☐ Scalehouse	☐ Run-on, run-off system
☐ Ground water well	☐ Methane probe	☐ Blown litter
☐ Access roads	☐ Fire breaks	☐ Gates/Fences/Signs

2. Indicate details of work completed:

Thursday MAY 25, 1995

TYPE			Kind	Quantity	Bill
	E	Rapid Rail	Comm. Garbage	12000	
	E	Rapid Rail	Res. Garbage	7500	
163	C	Laidlaw	Wood	8400	126
	R		Misc. Trash	380	
	E	City Truck	Limbs	940	
	E	City Truck	Scrap	900	
	E	Rapid Rail	Res. Garbage	13020	
	R		Windows	480	
	E	Rapid Rail	Res. Garbage	6120	
059	C	D & Construction	Dirt-Tree Limbs	18480	276
	R		Shingles	1420	
	C	D G Construction	Dirt-Limbs	15200	228
123	C	Nebo	Bricks	2080	31
	R/P		Demolition Waste	10200	
	C	Waste Management	Comm. Waste	5200	78
	C	Nebo	Bricks	1160	17
	R/P		Demolition Waste	7860	
	R		Household Trash	120	
	E	City Truck	Grit	300	
	R/P		Demolition Waste	14020	
	C	D & Construction	Dirt-Limbs	18160	272
	R		Misc. Trash	320	
	R/P		Demolition Waste	18220	
	R/P		Demolition Waste	20420	
059	C	D & Construction	Dirt-Limbs	26840	402

RECYCLING PERMIT

In the past, a 3X5 card was issued to those who were successful in drawing for a wood-recycling permit. Those cards are no longer issued. A list of the names of permit holders is kept at the landfill scalehouse and is checked when permit holders come for wood.

Generator	1. Work site name and mailing address RAYLOC, 700 N. 500 E., Payson, UT 84651	Owner's name RAYLOC	Owner's telephone no. (801) 465-4841
	2. Operator's name and address		Operator's telephone no.
	3. Waste disposal site (WDS) name, mailing address, and physical site location PAYSON CITY LANDFILL WEST MOUNTAIN AREA, PAYSON, UTAH 84651		WDS phone no. (801) 465-9709
	4. Name, and address of responsible agency STATE OF UTAH DEPARTMENT OF HEALTH DIVISION OF ENVIRONMENTAL HEALTH 1950 WEST NORTH TEMPLE P.O. BOX 16690 SALT LAKE CITY, UT 84116-0690		
	5. Description of materials ASBESTOS BRAKE LINING AND DUST GRINDING	6. Containers No. 23 Type Lining	7. Total quantity m^3 (yd^3) 5400 LBS
	8. Special handling instructions and additional information		
	9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations. Printed/typed name & title JOHN PETERSON, PRODUCTION SUPERINTENDENT	Signature	Month Day Year 5 3 95
Transporter	10. Transporter 1 (Acknowledgment of receipt of materials) Printed/typed name & title RAYLOC (801) 465-4841 Address and telephone no. 700 N. 500 E., Payson, UT 84651	Signature	Month Day Year 5 3 95
	11. Transporter 2 (Acknowledgment of receipt of materials) Printed/typed name & title Address and telephone no.	Signature	Month Day Year
Disposal Site	12. Discrepancy indication space		
	13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12 Printed/typed name & title DAVID L. RAGAN OPERATOR	Signature David L. Ragan	Month Day Year 5 3 95

(Continu

Figure 4. Waste Shipment Record

Waste Inspection Report

Inspector:_____ Date:_____ Time:_____

Vehicle License Number:_____ Vehicle Description:_____

Vehicle Weight Gross:_____ Tare:_____ Net:_____

Vehicle Owner:_____ Phone Number:_____
Owner Address:_____
Street City State Zip

Driver's Name:_____ Driver's Signature:_____

Waste Generator Name:_____
Waste Generator Address:_____
Street City State Zip

Inspector Load Description:_____

Waste Type
Household:_____ Commercial:_____ Industrial: ___ Medical:_____ Ash:_____Sludge:_____ Wood:
Asbestos:_____ Contaminated Soil:_____ C/D Debris:_____ Tires:_____ PCBs (<50 ppm):_____
Household or Conditionally Exempt Hazardous Waste:_____Other:_____
(Describe material, pre-authorization, and/or disposal method)

Suspicious Load (check potential for hazardous material content)
Sealed Containers:_____ Dry Chemicals:____ Liquid:_____ Radioactive:_____ PCBs:_____
Flammable Material:_____ Oxidizers:_____ Other:_____

Field Tests Performed:_____ By:_____
Test Results:_____

Generator Non-Hazardous Certification Not Needed:_____ Requested:_____

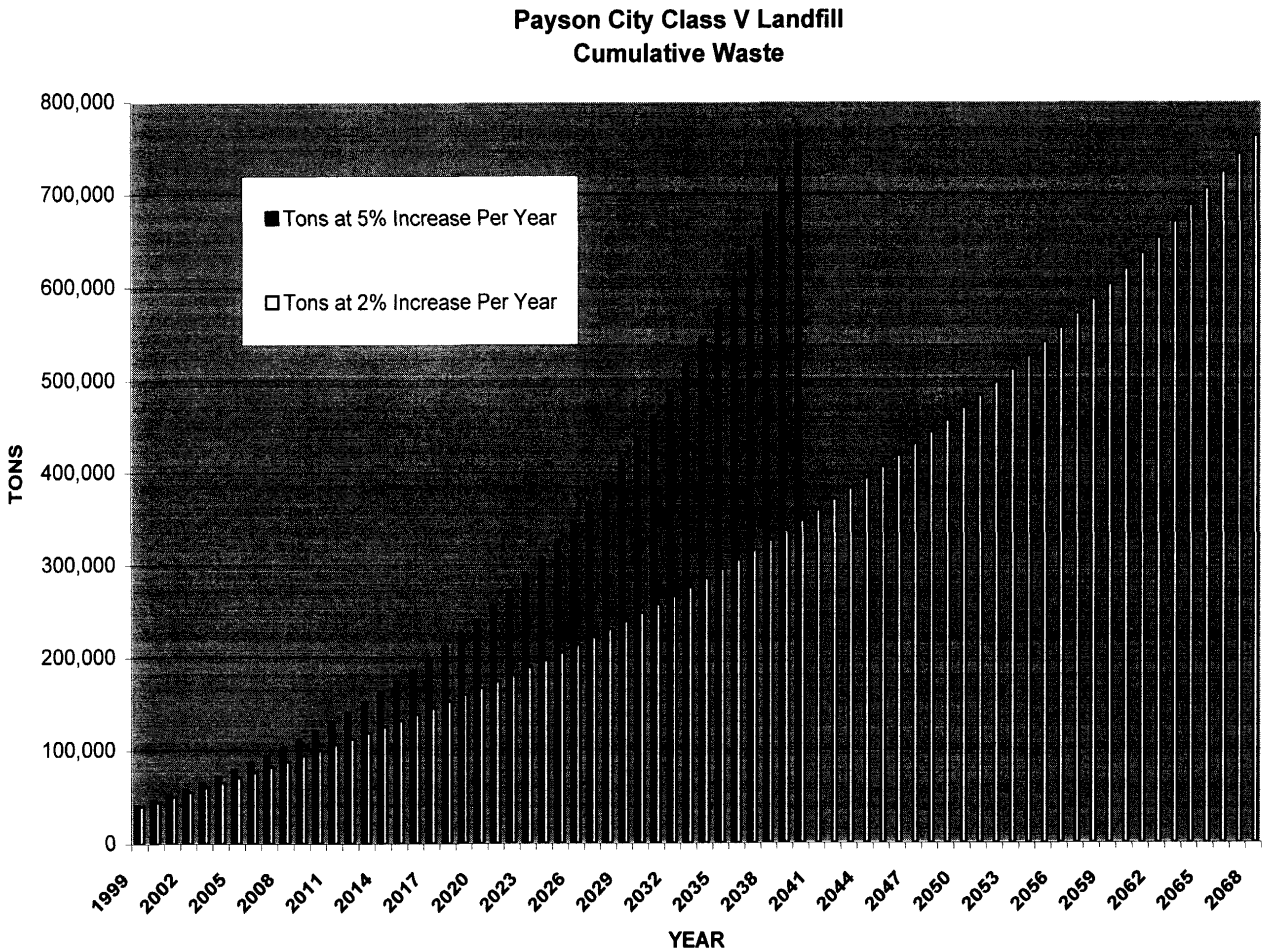
Inspection Results
Load Accepted:_____ Load Rejected:_____

Follow-up (if needed):_____

Division of Solid and Hazardous Waste notified of hazardous waste load rejected:_____
Inspector's Signature:_____

APPENDIX D

Graph of Cumulative Waste Projections

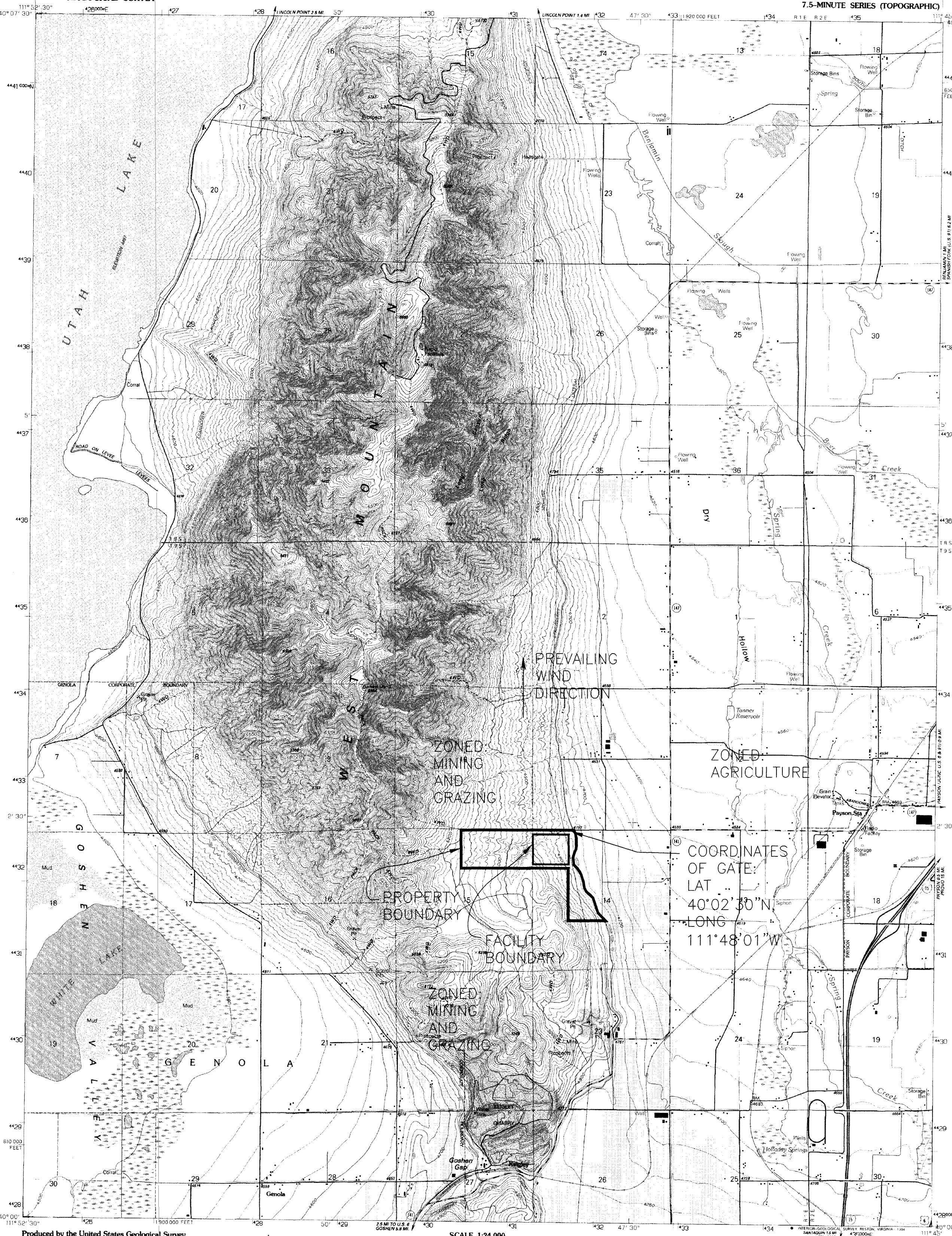

Payson City Class V Landfill
Cumulative Waste
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
TONS
Tons at 5% Increase Per Year
Tons at 2% Increase Per Year
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
2029
2032
2035
2038
2041
2044
2047
2050
2053
2056
2059
2062
2065
2068
YEAR

APPENDIX E

Drawing No. III –1 U.S. Geological Survey Topographic Map

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WEST MOUNTAIN QUADRANGLE
UTAH–UTAH CO.
7.5-MINUTE SERIES (TOPOGRAPHIC)



Produced by the United States Geological Survey

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1947. Revised from aerial photographs taken 1987 and other sources. Field checked 1990 Map edited 1994

North American Datum of 1927 (NAD 27). Projection and 10 000-foot ticks: Utah Coordinate System, central zone (Lambert Conformal Conic)
Blue 1000-meter Universal Transverse Mercator ticks, zone 12

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

Gray tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FEET TO METERS MULTIPLY BY 0.3048
TO CONVERT METERS TO FEET MULTIPLY BY 3.2808

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ADJOINING 7.5' QUADRANGLE NAMES
1 Soldiers Pass
2 Lincoln Point
3 Provo
4 Goshen Valley North
5 Spanish Fork
6 Goshen
7 Santaquin
8 Payson Lakes

ROAD CLASSIFICATION
Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route / U. S. Route / State Route

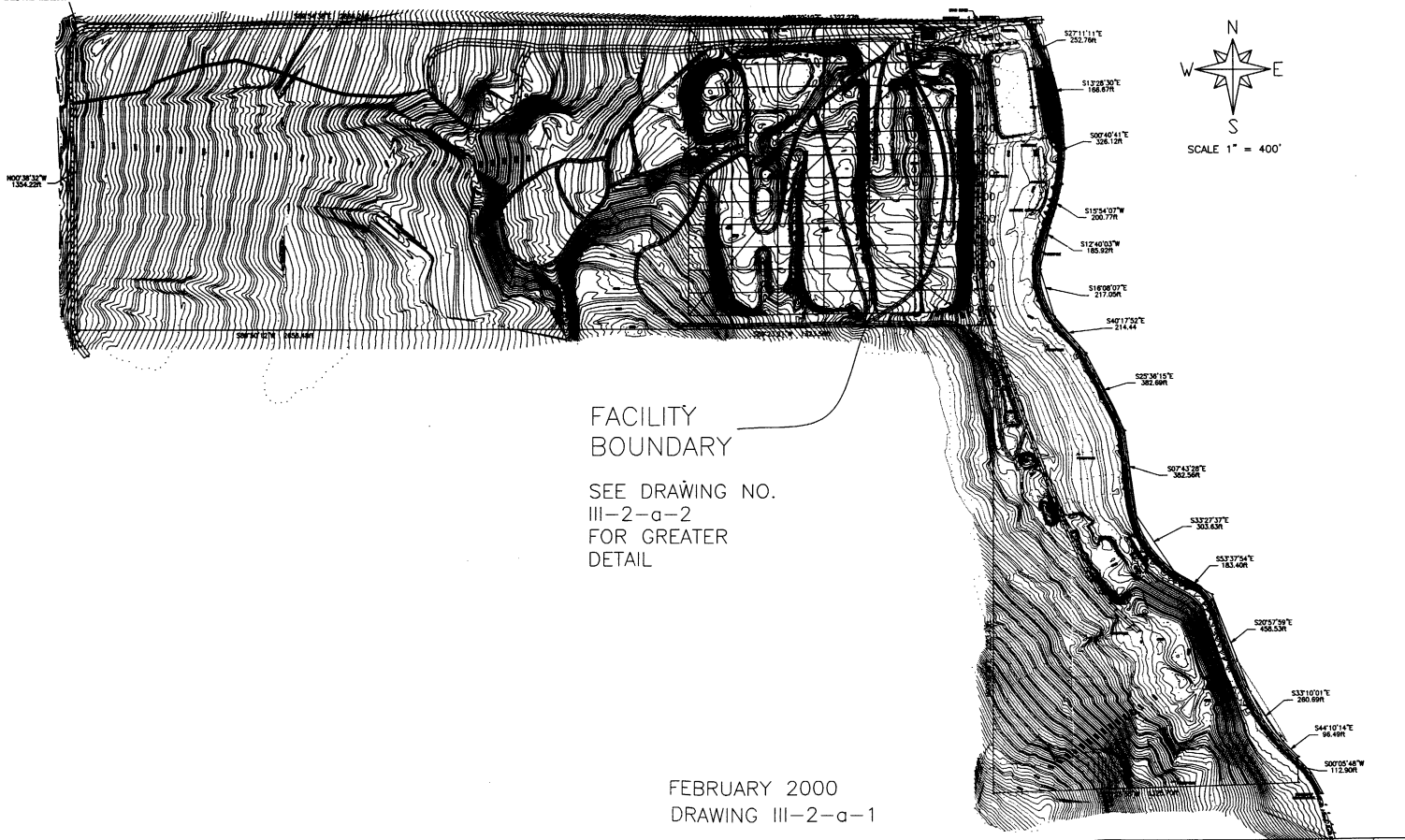
WEST MOUNTAIN, UTAH
40111-A7-TF-024
1994
DMA 3664 III SE–SERIES V897

APPENDIX F

Topographic Maps

Drawing No.	Drawing Description
III-2-a-1	Topographic Map – Site Layout
III-2-a-2	Topographic Map – Monitoring Wells
III-2-a-3	Cross Section A_A

PAYSON CITY CORPORATION CLASS V LANDFILL



FEBRUARY 2000
DRAWING III-2-a-1

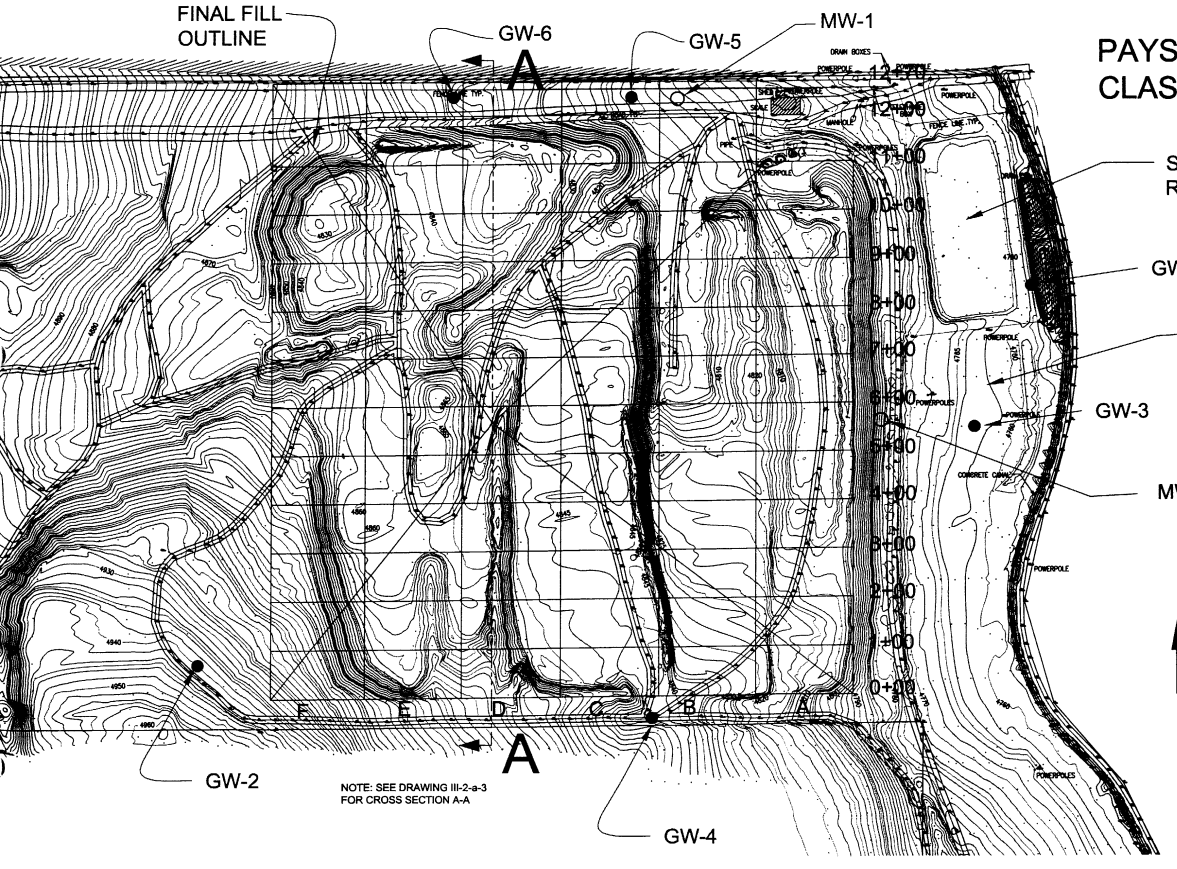
REVISION	DATE	BY	DESCRIPTION

DESIGN	JHJ	DRAWN	JHJ
CHECKED		CHECKED	
SCALE	1"=200'	DATE	01/29/98
F.B.NO.			

PAYSON CITY
438 WEST UTAH AVE.
PAYSON, UTAH 84651
PHONE 465-5200

PAYSON CITY LANDFILL
TOPOGRAPHY MAP

SHEET 1 OF 1
DRWG NO

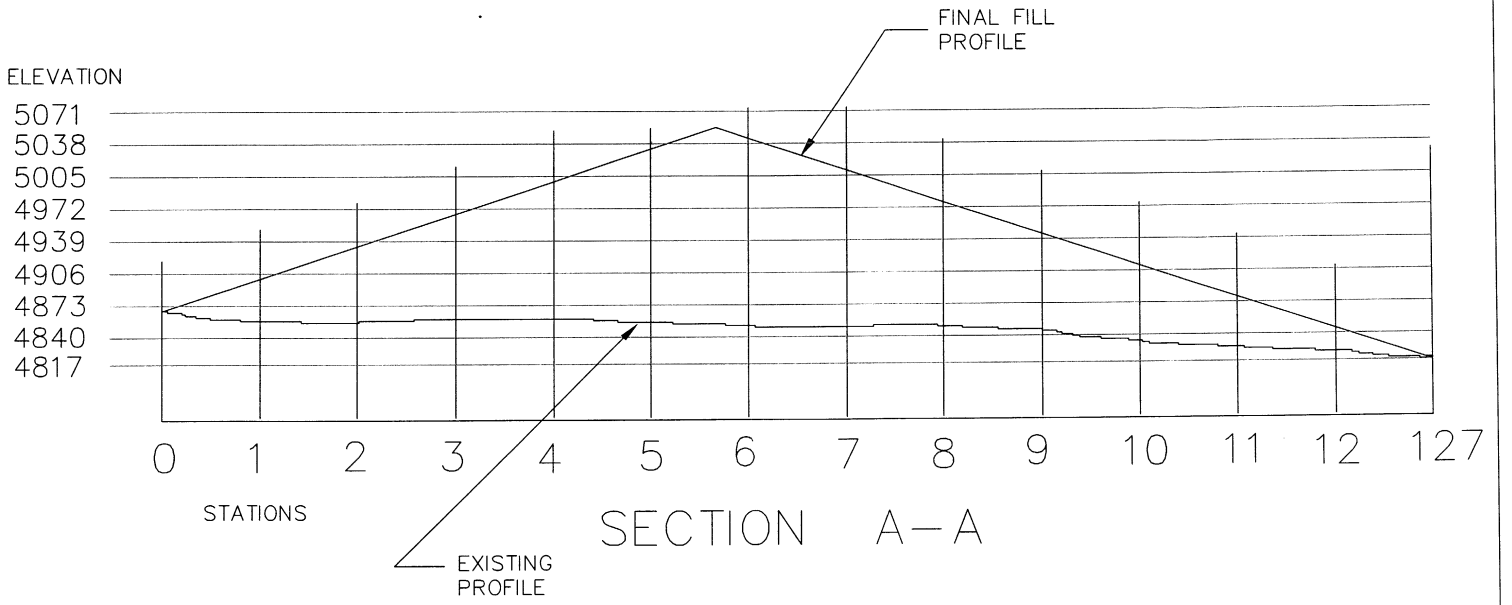


PAYSON CITY CORPORATION
CLASS V LANDFILL

NOTE:

- ● GW = GROUND WATER MONITIORING WELL
- ○ MW = METHANE SAMPLING WELL

FEBRUARY 2000
DRAWING NO. III-2-a-2
SCALE 1" = 200'



SECTION A–A

PAYSON CITY
CLASS V LANDFILL

SCALE: 1" = 100'

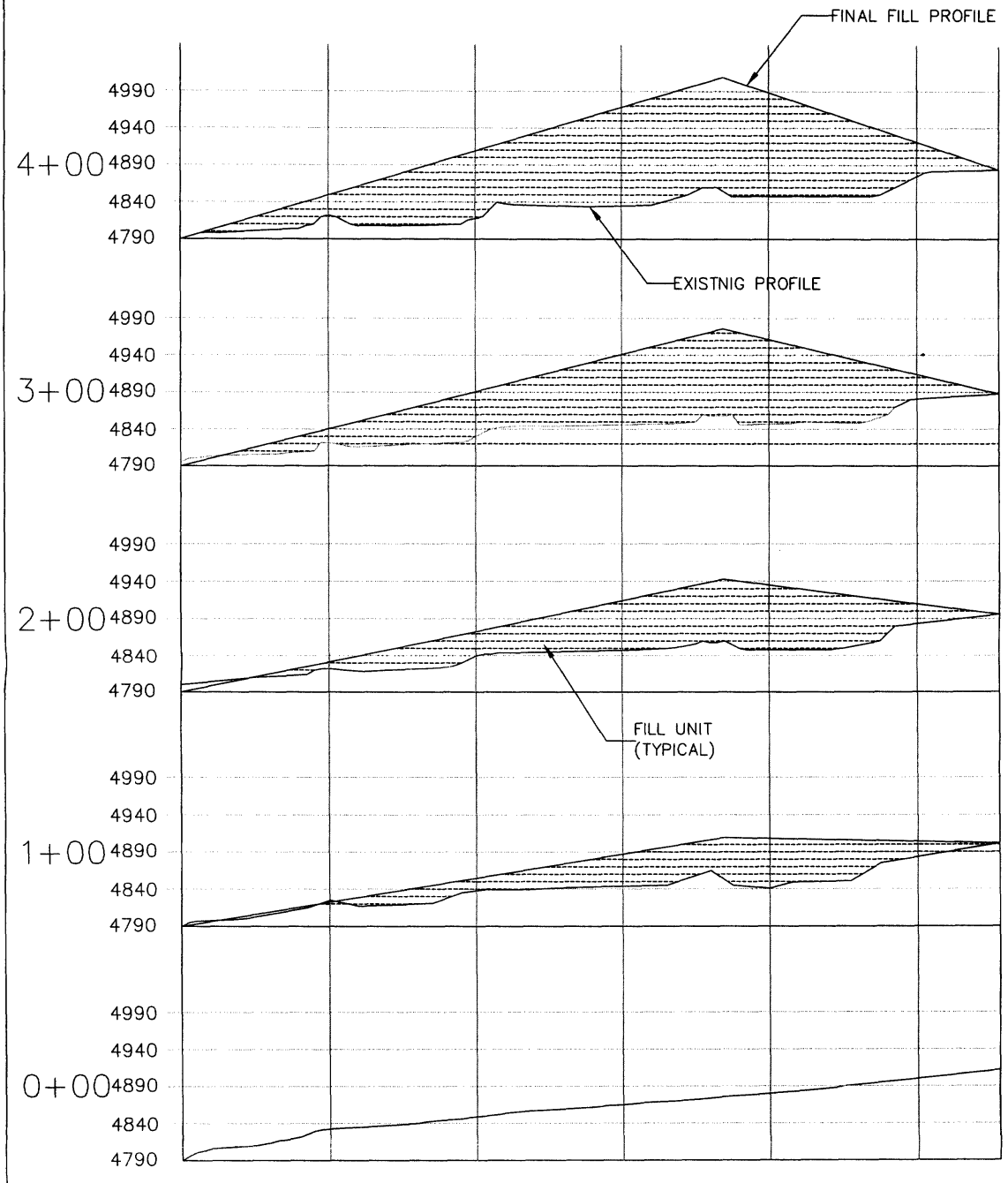
DRAWING NO. III–2–a–3

FEBRUARY 2000

APPENDIX G

Plans and Specification

Drawing No.	Drawing
III-3-a-1	Existing and final fill profiles, Stations 0 through 4
III-3-a-2	Existing and final fill profiles, Stations 5 through 9
III-3-a-3	Existing and final fill profiles, Stations 10 through 12.7
III-3-a-4	Fill Unit and Element Details

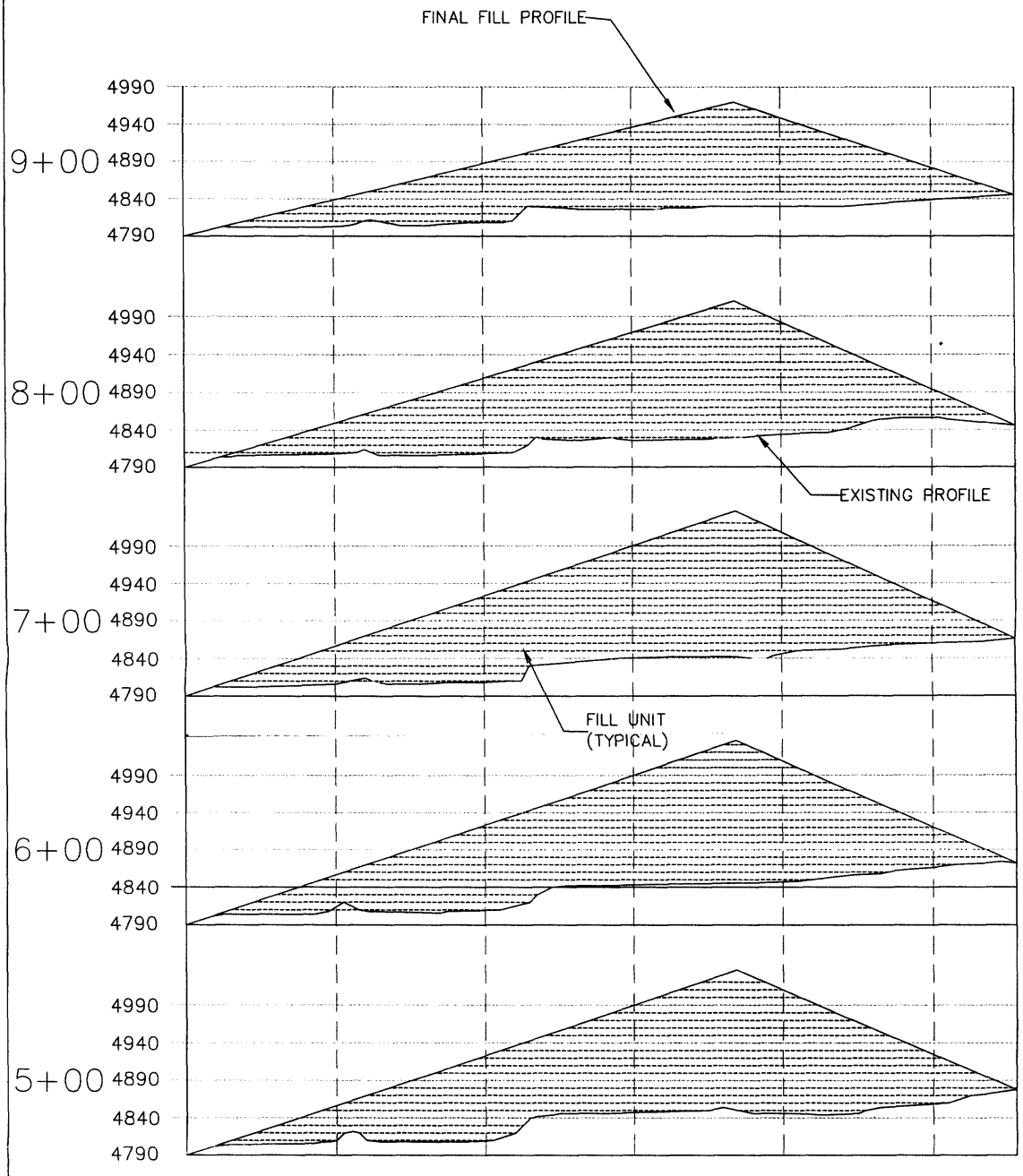


EXISTING AND FINAL FILL
PROFILES AT 100' INTERVALS

PAYSON CITY
CLASS V LANDFILL

SCALE: 1" = 150'

DRAWING NO. III-3-b-1 FEBRUARY 2000

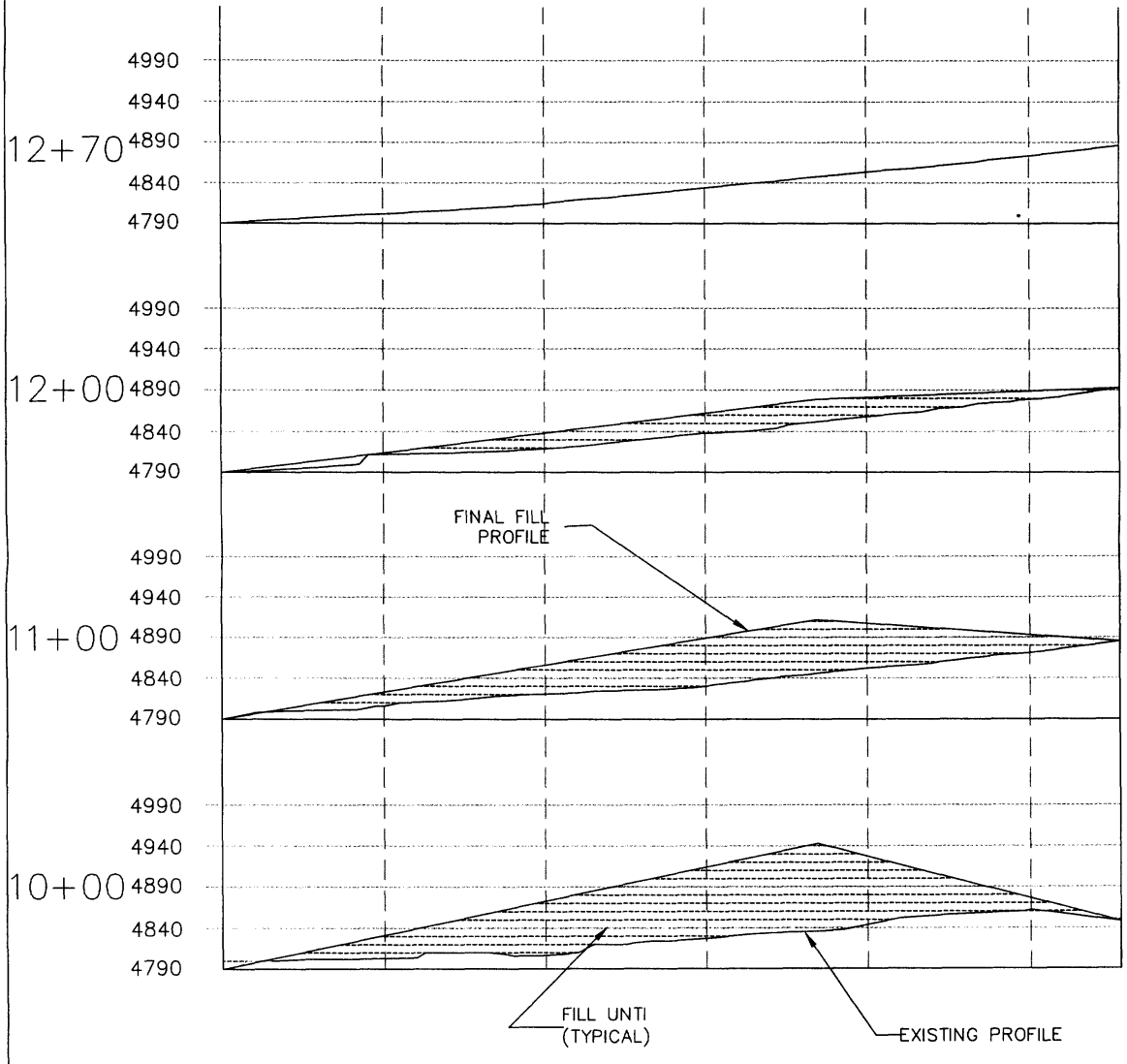


EXISTING AND FINAL FILL
PROFILES AT 100' INTERVALS

PAYSON CITY
CLASS V LANDFILL

SCALE: 1" = 150'

DRAWING NO. III-3-b-2 FEBRUARY 2000

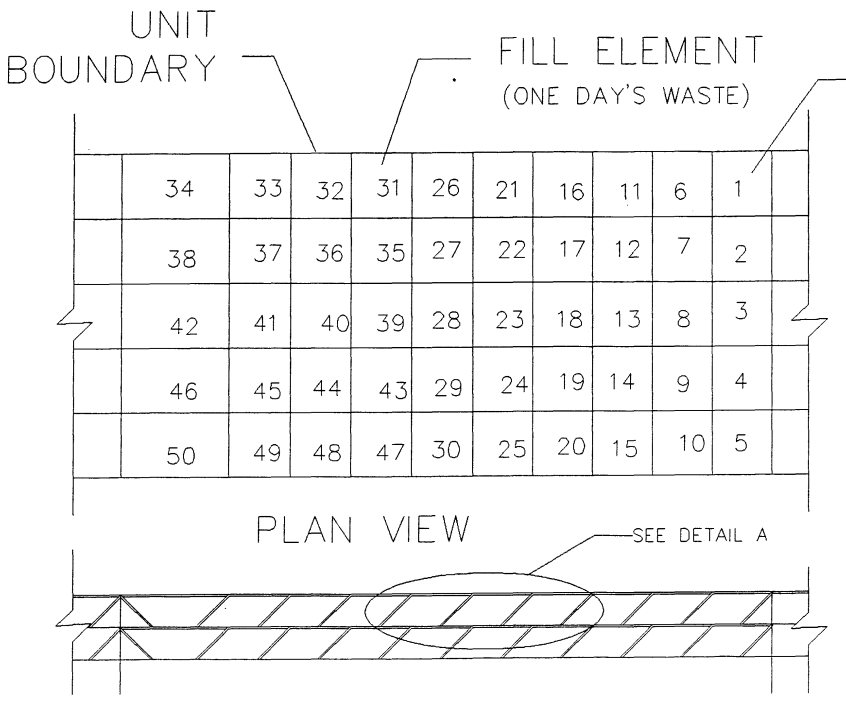


EXISTING AND FINAL FILL
PROFILES AT 100' INTERVALS

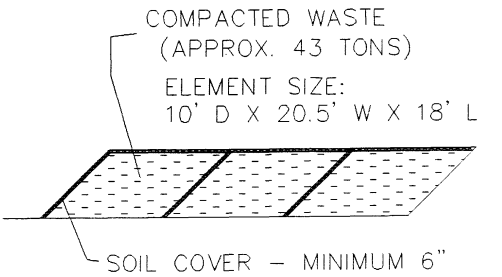
PAYSON CITY
CLASS V LANDFILL

SCALE: 1" = 150'

DRAWING NO. III-3-b-3 FEBRUARY 2000



SCALE: 1"=30'



DETAIL A
FILL ELEMENT

SCALE: 1"= 15'

PAYSON CITY CLASS V LANDFILL

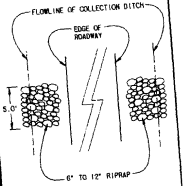
DRAWING NO. III-3-b-4 FEBRUARY 2000

APPENDIX H

Design and Location of Run-on and Run-off Control Systems

Drawing No.	Drawing
P-LF_SIT	Site Plan
P-LF-EC	Erosion Control
P-LF_BAS	Retention Pond Plan & Profile
P-LF_PIP	Pipe System Layout
P-LF_DET	Inlet Box Details

Storm Drain Calculations
Slope Stability Calculations



ACCESS ROAD & COLLECTION DITCH
PLAN & PROFILE
SCALE = NONE

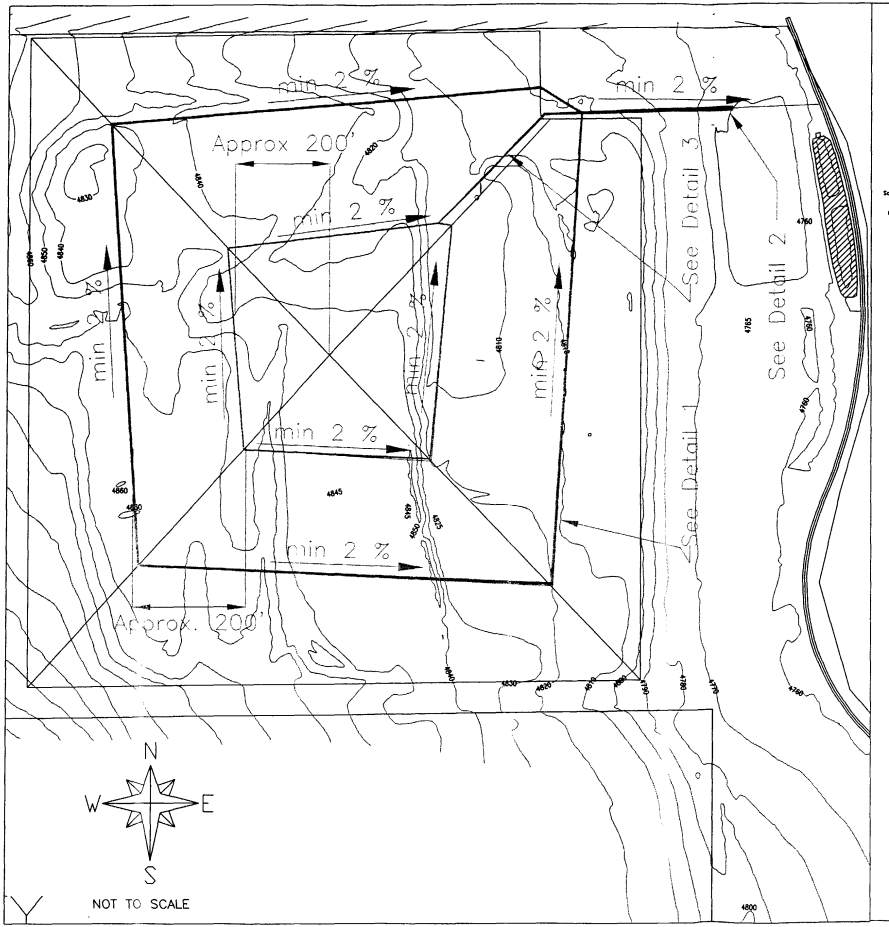
DRAWN RJB			
CHECKED RDT			
DESIGNED DLJ			
REVISIONS	BY	DATE	

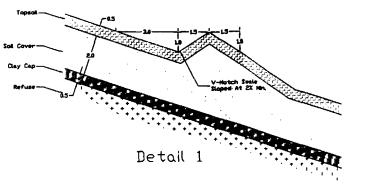
PERKINS–THURGOOD
CONSULTING ENGINEERS INC.

PAYSON CITY CORPORATION
SANITARY LANDFILL
STORM DRAINAGE AND RETENTION POND

SITE PLAN

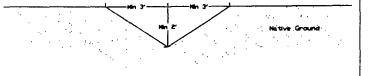
DRAWING # P-LF.SI
PROJECT NO 9203
DATE AUG. 1995
SHEET NO. 7 OF 7



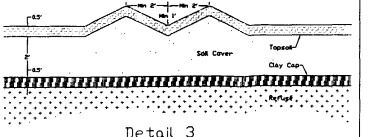


Detail 1

Slope V-Notch Swale Detail



Detail 2



Detail 3

Collector Ditch Details

General Notes

No.	Revision/Issue	Date

Payson City
439 Utah Ave.
Payson, Utah

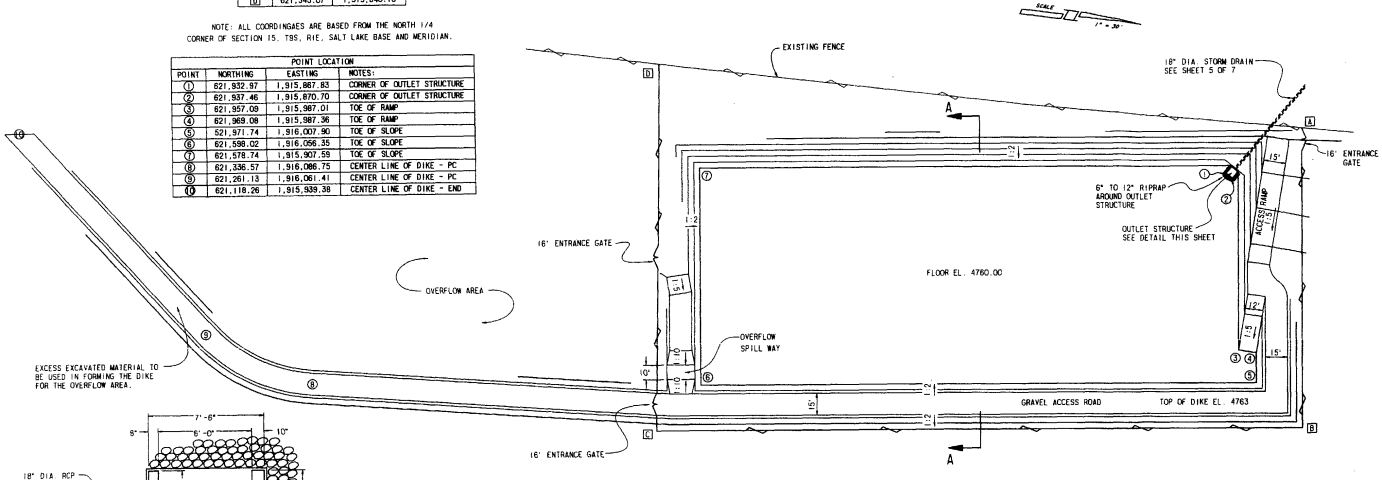
Payson City
Class V Landfill
Payson, Utah

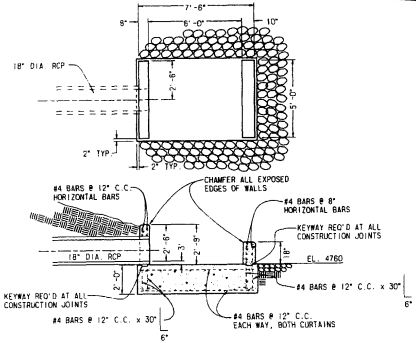
Project: Class V Landfill	Sheet: 1 of 1
Date: 12/20/01	Drawing #: P-LF-EC
Scale: Not to Scale	

FENCE CORNER LOCATION		
POINT	NORTHING	EASTING
A	621,980.01	1,915,828.35
B	622,006.62	1,916,034.64
C	621,572.11	1,916,091.36
D	621,543.07	1,915,840.16

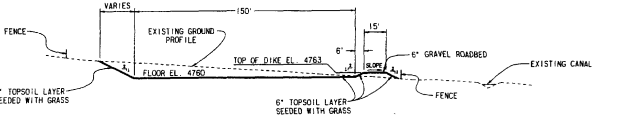
NOTE: ALL COORDINGAES ARE BASED FROM THE NORTH 1/4 CORNER OF SECTION 15, T8S, R1E, SALT LAKE BASE AND MERIDIAN.

POINT LOCATION			
POINT	NORTHING	EASTING	NOTES:
①	621,932.97	1,915,867.83	CORNER OF OUTLET STRUCTURE
②	621,937.46	1,915,870.70	CORNER OF OUTLET STRUCTURE
③	621,957.09	1,915,987.01	TOE OF RAMP
④	621,969.08	1,915,987.36	TOE OF RAMP
⑤	621,971.74	1,916,007.90	TOE OF SLOPE
⑥	621,598.02	1,916,056.35	TOE OF SLOPE
⑦	621,578.74	1,915,907.59	TOE OF SLOPE
⑧	621,336.57	1,916,086.75	CENTER LINE OF DIKE - PC
⑨	621,261.13	1,916,061.41	CENTER LINE OF DIKE - PC
⑩	621,118.26	1,915,939.38	CENTER LINE OF DIKE - END





OUTLET STRUCTURE DETAIL
SCALE: 1" = 3'



RETENTION POND
CROSS SECTION A-A

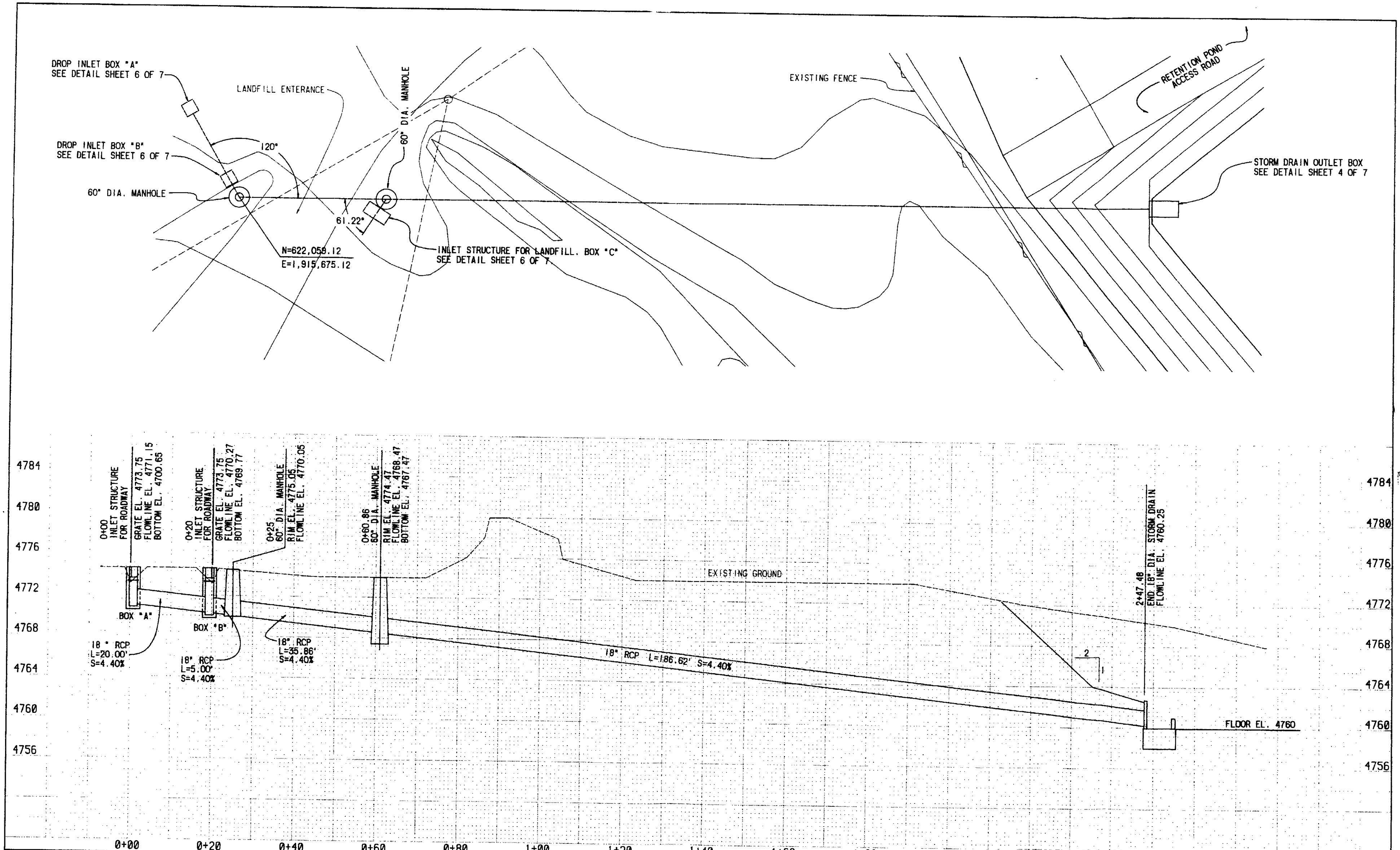
DRAWN	RJH				
CHECKED	RLH				
DESIGNED	RLH				
SCALE	1" = 30'	REVISIONS	BY	DATE	

PERKINS-THURGOOD
CONSULTING ENGINEERS INC.

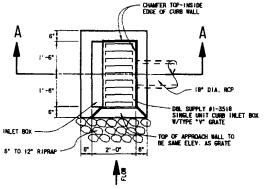
PAYSON CITY CORPORATION
SANITARY LANDFILL
STORM DRAINAGE AND RETENTION POND

RETENTION POND
PLAN & PROFILE

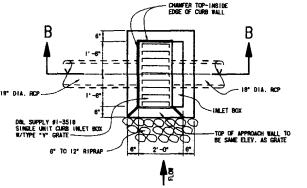
DRAWING # P-LF.BAS
PROJECT NO. 92032
DATE AUG. 1993
SHEET NO. 4 OF 7



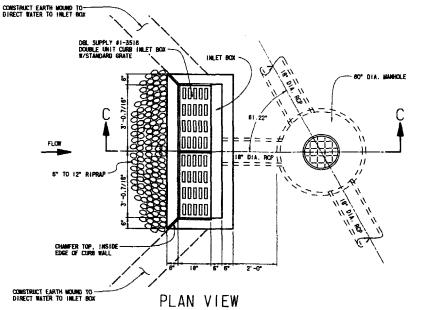
DRAWN RJB CHECKED BDT DESIGNED BLH SCALE HORIZ.: 1" = 10' VERT.: 1" = 4'	REVISIONS BY DATE	*PERKINS–THURGOOD* CONSULTING ENGINEERS INC.	PAYSON CITY CORPORATION SANITARY LANDFILL STORM DRAINAGE AND RETENTION POND	PIPE SYSTEM LAYOUT	DRAWING # P-LF PIP PROJECT NO. 92032 DATE AUG. 1993 SHEET NO. 5 OF 7



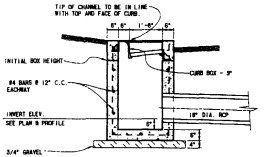
PLAN VIEW



PLAN VIEW

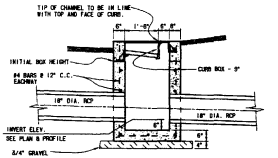


PLAN VIEW



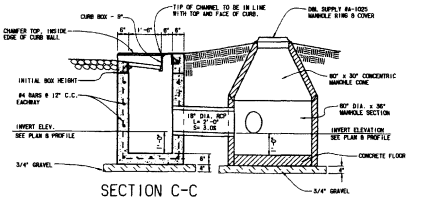
SECTION A-A

SINGLE UNIT
BOX "A" INLET DETAIL



SECTION B-B

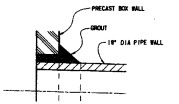
SINGLE UNIT
BOX "B" INLET DETAIL



SECTION C-C

DOUBLE UNIT
BOX "C" INLET DETAIL

NOTE:
PRECAST BOXES MAY BE USED FOR AN INLET BOX.
THE FOLLOWING RULES APPLY...
1- MINIMUM WEIGHT 3 TONS.
2- MINIMUM HOLE DIAMETER TO BE 3" GREATER THAN THE OUTSIDE DIAMETER OF PIPE.
18" CONCRETE PIPE — 25.5" HOLE DIA.
3- FOLLOWING INSTALLATION OF PIPE, GROUT THE ANNULAR SPACE BETWEEN THE PIPE AND THE BOX WALL, AND GROUT A 2" WIDE FILLET/COLLAR AROUND THE PIPE ON THE OUTSIDE OF THE BOX.
SEE PRECAST HOLE DETAIL THIS SHEET.



PRECAST HOLE
DETAIL
SCALE = NONE

DRAWN	RJB				
CHECKED	BDT				
DESIGNED	BLN				
SCALE	1" = 2'-0"	REVISIONS	BY	DATE	

PERKINS-THURGOOD
CONSULTING ENGINEERS INC.

PAYSON CITY CORPORATION
SANITARY LANDFILL
STORM DRAINAGE AND RETENTION POND

INLET BOX DETAILS

DRAWING #	P-LF_DET
PROJECT NO.	92032
DATE	AUG. 1993
SHEET NO.	6 OF 7

Manning Equation								
Q	V	A	d	ϕ	P	R	S	n
cfs	fps	ft^2	ft	^{0}	ft	ft	%	-
39.45	4.38	9.00	3.0	45	8.5	1.06	1%	0.025
36.04	4.29	8.41	2.9	45	8.2	1.03	1%	0.025
32.82	4.19	7.84	2.8	45	7.9	0.99	1%	0.025
29.79	4.09	7.29	2.7	45	7.6	0.95	1%	0.025
26.93	3.98	6.76	2.6	45	7.4	0.92	1%	0.025
24.26	3.88	6.25	2.5	45	7.1	0.88	1%	0.025
21.76	3.78	5.76	2.4	45	6.8	0.85	1%	0.025
27.47	5.19	5.29	2.3	45	6.5	0.81	1%	0.025
4.21	4.21	1.00	1	45	2.8	0.35	2%	0.025
3.18	3.93	0.81	0.9	45	2.5	0.32	2%	0.025
2.32	3.63	0.64	0.8	45	2.3	0.28	2%	0.025
1.63	3.32	0.49	0.7	45	2.0	0.25	2%	0.025
1.08	3.00	0.36	0.6	45	1.7	0.21	2%	0.025
0.66	2.65	0.25	0.5	45	1.4	0.18	2%	0.025
0.37	2.29	0.16	0.4	45	1.1	0.14	2%	0.025
0.17	1.89	0.09	0.3	45	0.8	0.11	2%	0.025
0.06	1.44	0.04	0.2	45	0.6	0.07	2%	0.025
0.01	0.91	0.01	0.1	45	0.3	0.04	2%	0.025

SMADA 6.0 for Windows
Watershed Information

Watershed Total Area (acres)	:2.00
Impervious Area (acres)	:0.00
Time of Concentration (min)	:6.0
% Impervious Directly Connected	:00.00
Additional Abstraction	
Over Pervious Area (inches)	:0.00
Over Impervious Area (inches)	:0.00
Infiltration Characteristics:	
Max Infiltration Capacity (in)	:24.00
SCS Curve Number for Pervious	:77
Initial Abstraction Factor	:0.20

Hydrograph Type :Santa Barbara Method

Time (hr)	Time HHMM	Rain (in)	C Rain (in)	Infiltration (in)	Instant (cfs)	Outflow (cfs)
0.250	00015	0.005	0.005	0.005	0.000	0.000
0.500	00030	0.008	0.013	0.008	0.000	0.000
0.7[illegible]	00045	0.008	0.021	0.008	0.000	0.000
1.[illegible]	00100	0.008	0.029	0.008	0.000	0.000
1.250	00115	0.008	0.036	0.008	0.000	0.000
1.500	00130	0.008	0.044	0.008	0.000	0.000
1.750	00145	0.008	0.052	0.008	0.000	0.000
2.000	00200	0.008	0.060	0.008	0.000	0.000
2.250	00215	0.008	0.068	0.008	0.000	0.000
2.500	00230	0.008	0.076	0.008	0.000	0.000
2.750	00245	0.008	0.083	0.008	0.000	0.000
3.000	00300	0.008	0.091	0.008	0.000	0.000
3.250	00315	0.008	0.099	0.008	0.000	0.000
3.500	00330	0.008	0.107	0.008	0.000	0.000
3.750	00345	0.008	0.115	0.008	0.000	0.000
4.000	00400	0.010	0.125	0.010	0.000	0.000
4.250	00415	0.010	0.135	0.010	0.000	0.000
4.500	00430	0.010	0.146	0.010	0.000	0.000
4.750	00445	0.010	0.156	0.010	0.000	0.000
5.000	00500	0.010	0.167	0.010	0.000	0.000
5.250	00515	0.010	0.177	0.010	0.000	0.000
5.500	00530	0.010	0.187	0.010	0.000	0.000
5.750	00545	0.010	0.198	0.010	0.000	0.000
6.000	00600	0.010	0.208	0.010	0.000	0.000
6.250	00615	0.013	0.221	0.013	0.000	0.000
6.500	00630	0.013	0.234	0.013	0.000	0.000
6.750	00645	0.013	0.247	0.013	0.000	0.000
7.000	00700	0.013	0.260	0.013	0.000	0.000
7.250	00715	0.013	0.273	0.013	0.000	0.000
7.500	00730	0.013	0.286	0.013	0.000	0.000
7.750	00745	0.013	0.299	0.013	0.000	0.000
8.000	00800	0.013	0.312	0.013	0.000	0.000
8.250	00815	0.016	0.328	0.016	0.000	0.000
8.500	00830	0.018	0.346	0.018	0.000	0.000
8.750	00845	0.018	0.365	0.018	0.000	0.000
9.000	00900	0.018	0.383	0.018	0.000	0.000
9.250	00915	0.021	0.404	0.021	0.000	0.000
9.5[illegible]	00930	0.021	0.424	0.021	0.000	0.000
9.7[illegible]	00945	0.023	0.448	0.023	0.000	0.000
10.00	01000	0.023	0.471	0.023	0.000	0.000
10.25	01015	0.026	0.497	0.026	0.000	0.000
10.50	01030	0.031	0.529	0.031	0.000	0.000
10.75	01045	0.039	0.568	0.039	0.000	0.000
11.00	01100	0.047	0.615	0.047	0.001	0.000
11.25	01115	0.055	0.669	0.053	0.013	0.008
11.50	01130	0.068	0.737	0.063	0.037	0.027
11.75	01145	0.271	1.008	0.227	0.349	0.212
12.00	01200	0.719	1.726	0.459	2.098	1.336
12.25	01215	0.115	1.841	0.059	0.451	1.267
12.50	01230	0.073	1.914	0.036	0.300	0.276
12.75	01245	0.060	1.974	0.028	0.253	0.277
13.00	01300	0.047	2.021	0.022	0.203	0.223
13.25	01315	0.039	2.060	0.018	0.172	0.183
13.50	01330	0.034	2.094	0.015	0.151	0.159
13.75	01345	0.029	2.122	0.013	0.129	0.138
14.00	01400	0.026	2.148	0.011	0.118	0.122
14.25	01415	0.023	2.172	0.010	0.108	0.112
14.50	01430	0.021	2.193	0.009	0.096	0.101
14.75	01445	0.018	2.211	0.008	0.085	0.089
15.00	01500	0.018	2.229	0.008	0.085	0.085
15.25	01515	0.018	2.247	0.008	0.086	0.086
15.50	01530	0.016	2.263	0.006	0.074	0.079
15.75	01545	0.016	2.278	0.006	0.074	0.073
16.00	01600	0.016	2.294	0.006	0.075	0.075
16.25	01615	0.016	2.310	0.006	0.075	0.075
16.50	01630	0.016	2.325	0.006	0.075	0.075
16.75	01645	0.013	2.338	0.005	0.063	0.068
17.00	01700	0.013	2.351	0.005	0.063	0.062
17.25	01715	0.013	2.364	0.005	0.063	0.063
17.50	01730	0.013	2.377	0.005	0.064	0.064
17.75	01745	0.013	2.390	0.005	0.064	0.064
18.00	01800	0.010	2.401	0.004	0.051	0.057
18.[illegible]	01815	0.010	2.411	0.004	0.051	0.051
18.[illegible]	01830	0.010	2.422	0.004	0.052	0.052
18.75	01845	0.010	2.432	0.004	0.052	0.052
19.00	01900	0.010	2.443	0.004	0.052	0.052
19.25	01915	0.010	2.453	0.004	0.052	0.052
19.50	01930	0.010	2.463	0.004	0.052	0.052
19.75	01945	0.010	2.474	0.004	0.052	0.052
20.00	02000	0.008	2.482	0.003	0.039	0.045
20.25	02015	0.008	2.489	0.003	0.039	0.039

20.50	02030	0.008	2.497	0.003	0.039	0.039
20.75	02045	0.008	2.505	0.003	0.039	0.039
21.00	02100	0.008	2.513	0.003	0.040	0.040
21.25	02115	0.008	2.521	0.003	0.040	0.040
21.50	02130	0.008	2.528	0.003	0.040	0.040
21.75	02145	0.008	2.536	0.003	0.040	0.040
22.00	02200	0.008	2.544	0.003	0.040	0.040
22.25	02215	0.008	2.552	0.003	0.040	0.040
22	02230	0.008	2.560	0.003	0.040	0.040
22	02245	0.008	2.568	0.003	0.040	0.040
23.00	02300	0.008	2.575	0.003	0.040	0.040
23.25	02315	0.008	2.583	0.003	0.040	0.040
23.50	02330	0.008	2.591	0.003	0.040	0.040
23.75	02345	0.008	2.599	0.003	0.040	0.040
24.00	00000	0.005	2.604	0.002	0.027	0.033
24.25	00015	0.000	2.604	0.000	0.000	0.011
24.50	00030	0.000	2.604	0.000	0.000 -	0.001
			2.604	1.798	0.806	0.806

Totals for Watershed in inches over 2.00 acres

Rational Coefficient = 0.310 Peak Flow (cfs) = 01.34

SMADA 6.0 for Windows
Watershed Information

Watershed Total Area (acres)	:220.00
Impervious Area (acres)	:0.00
Time of Concentration (min)	:20.0
% Impervious Directly Connected	:00.00

Additional Abstraction

Over Pervious Area (inches)	:0.00
Over Impervious Area (inches)	:0.00

Infiltration Characteristics:

Max Infiltration Capacity (in)	:999.00
SCS Curve Number for Pervious	:65
Initial Abstraction Factor	:0.20

Hydrograph Type :SCS 484 Hydrograph

Time (hr)	Time HHMM	Rain (in)	C Rain (in)	Infiltration (in)	Instant (cfs)	Outflow (cfs)
0.250	00015	0.005	0.005	0.005	0.000	0.000
0.500	00030	0.008	0.013	0.008	0.000	0.000
0.[illegible]	00045	0.008	0.021	0.008	0.000	0.000
1.[illegible]	00100	0.008	0.029	0.008	0.000	0.000
1.250	00115	0.008	0.036	0.008	0.000	0.000
1.500	00130	0.008	0.044	0.008	0.000	0.000
1.750	00145	0.008	0.052	0.008	0.000	0.000
2.000	00200	0.008	0.060	0.008	0.000	0.000
2.250	00215	0.008	0.068	0.008	0.000	0.000
2.500	00230	0.008	0.076	0.008	0.000	0.000
2.750	00245	0.008	0.083	0.008	0.000	0.000
3.000	00300	0.008	0.091	0.008	0.000	0.000
3.250	00315	0.008	0.099	0.008	0.000	0.000
3.500	00330	0.008	0.107	0.008	0.000	0.000
3.750	00345	0.008	0.115	0.008	0.000	0.000
4.000	00400	0.010	0.125	0.010	0.000	0.000
4.250	00415	0.010	0.135	0.010	0.000	0.000
4.500	00430	0.010	0.146	0.010	0.000	0.000
4.750	00445	0.010	0.156	0.010	0.000	0.000
5.000	00500	0.010	0.167	0.010	0.000	0.000
5.250	00515	0.010	0.177	0.010	0.000	0.000
5.500	00530	0.010	0.187	0.010	0.000	0.000
5.750	00545	0.010	0.198	0.010	0.000	0.000
6.000	00600	0.010	0.208	0.010	0.000	0.000
6.250	00615	0.013	0.221	0.013	0.000	0.000
6.500	00630	0.013	0.234	0.013	0.000	0.000
6.750	00645	0.013	0.247	0.013	0.000	0.000
7.000	00700	0.013	0.260	0.013	0.000	0.000
7.250	00715	0.013	0.273	0.013	0.000	0.000
7.500	00730	0.013	0.286	0.013	0.000	0.000
7.750	00745	0.013	0.299	0.013	0.000	0.000
8.000	00800	0.013	0.312	0.013	0.000	0.000
8.250	00815	0.016	0.328	0.016	0.000	0.000
8.500	00830	0.018	0.346	0.018	0.000	0.000
8.750	00845	0.018	0.365	0.018	0.000	0.000
9.000	00900	0.018	0.383	0.018	0.000	0.000
9.250	00915	0.021	0.404	0.021	0.000	0.000
9.[illegible]	00930	0.021	0.424	0.021	0.000	0.000
9.7[illegible]	00945	0.023	0.448	0.023	0.000	0.000
10.00	01000	0.023	0.471	0.023	0.000	0.000
10.25	01015	0.026	0.497	0.026	0.000	0.000
10.50	01030	0.031	0.529	0.031	0.000	0.000
10.75	01045	0.039	0.568	0.039	0.000	0.000
11.00	01100	0.047	0.615	0.047	0.000	0.000
11.25	01115	0.055	0.669	0.055	0.000	0.000
11.50	01130	0.068	0.737	0.068	0.000	0.000
11.75	01145	0.271	1.008	0.271	0.000	0.000
12.00	01200	0.719	1.726	0.649	62.019	11.482
12.25	01215	0.115	1.841	0.090	22.211	27.075
12.50	01230	0.073	1.914	0.055	15.657	27.200
12.75	01245	0.060	1.974	0.044	13.712	23.285
13.00	01300	0.047	2.021	0.034	11.252	16.816
13.25	01315	0.039	2.060	0.028	9.718	12.666
13.50	01330	0.034	2.094	0.024	8.668	10.734
13.75	01345	0.029	2.122	0.020	7.510	9.296
14.00	01400	0.026	2.148	0.018	6.965	8.176
14.25	01415	0.023	2.172	0.016	6.380	7.353
14.50	01430	0.021	2.193	0.014	5.758	6.669
14.75	01445	0.018	2.211	0.012	5.105	6.042
15.00	01500	0.018	2.229	0.012	5.167	5.544
15.25	01515	0.018	2.247	0.012	5.228	5.295
15.50	01530	0.016	2.263	0.011	4.529	5.084
15.75	01545	0.016	2.278	0.010	4.574	4.834
16.00	01600	0.016	2.294	0.010	4.618	4.689
16.25	01615	0.016	2.310	0.010	4.661	4.624
16.50	01630	0.016	2.325	0.010	4.704	4.640
16.75	01645	0.013	2.338	0.009	3.953	4.536
17.00	01700	0.013	2.351	0.009	3.983	4.283
17.25	01715	0.013	2.364	0.008	4.013	4.113
17.50	01730	0.013	2.377	0.008	4.042	4.027
17.75	01745	0.013	2.390	0.008	4.071	4.028
18.[illegible]	01800	0.010	2.401	0.007	3.278	3.905
18.[illegible]	01815	0.010	2.411	0.007	3.296	3.627
18.3[illegible]	01830	0.010	2.422	0.007	3.315	3.437
18.75	01845	0.010	2.432	0.007	3.333	3.336
19.00	01900	0.010	2.443	0.007	3.351	3.324
19.25	01915	0.010	2.453	0.007	3.369	3.342
19.50	01930	0.010	2.463	0.007	3.387	3.361
19.75	01945	0.010	2.474	0.007	3.405	3.379
20.00	02000	0.008	2.482	0.005	2.566	3.238
20.25	02015	0.008	2.489	0.005	2.576	2.937

20.50	02030	0.008	2.497	0.005	2.586	2.728
20.75	02045	0.008	2.505	0.005	2.596	2.613
21.00	02100	0.008	2.513	0.005	2.606	2.591
21.25	02115	0.008	2.521	0.005	2.616	2.601
21.50	02130	0.008	2.528	0.005	2.625	2.611
21.75	02145	0.008	2.536	0.005	2.635	2.621
22.00	02200	0.008	2.544	0.005	2.645	2.630
22.25	02215	0.008	2.552	0.005	2.655	2.640
22	02230	0.008	2.560	0.005	2.664	2.650
22	02245	0.008	2.568	0.005	2.674	2.660
23.00	02300	0.008	2.575	0.005	2.684	2.670
23.25	02315	0.008	2.583	0.005	2.693	2.679
23.50	02330	0.008	2.591	0.005	2.703	2.689
23.75	02345	0.008	2.599	0.005	2.713	2.698
24.00	00000	0.005	2.604	0.003	1.814	2.540
24.25	00015	0.000	2.604	0.000	0.000	1.875
24.50	00030	0.000	2.604	0.000	0.000	0.973
24.75	00045	0.000	2.604	0.000	0.000	0.370
25.00	00100	0.000	2.604	0.000	0.000	0.067
			2.604	2.267	0.337	0.337

Totals for Watershed in inches over 220.00 acres

Rational Coefficient = 0.130 Peak Flow (cfs) = 27.20

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Comments: Slope Stability of Final Fill Profile
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Last Saved Time: 8:24:07 PM
Analysis Method: Bishop
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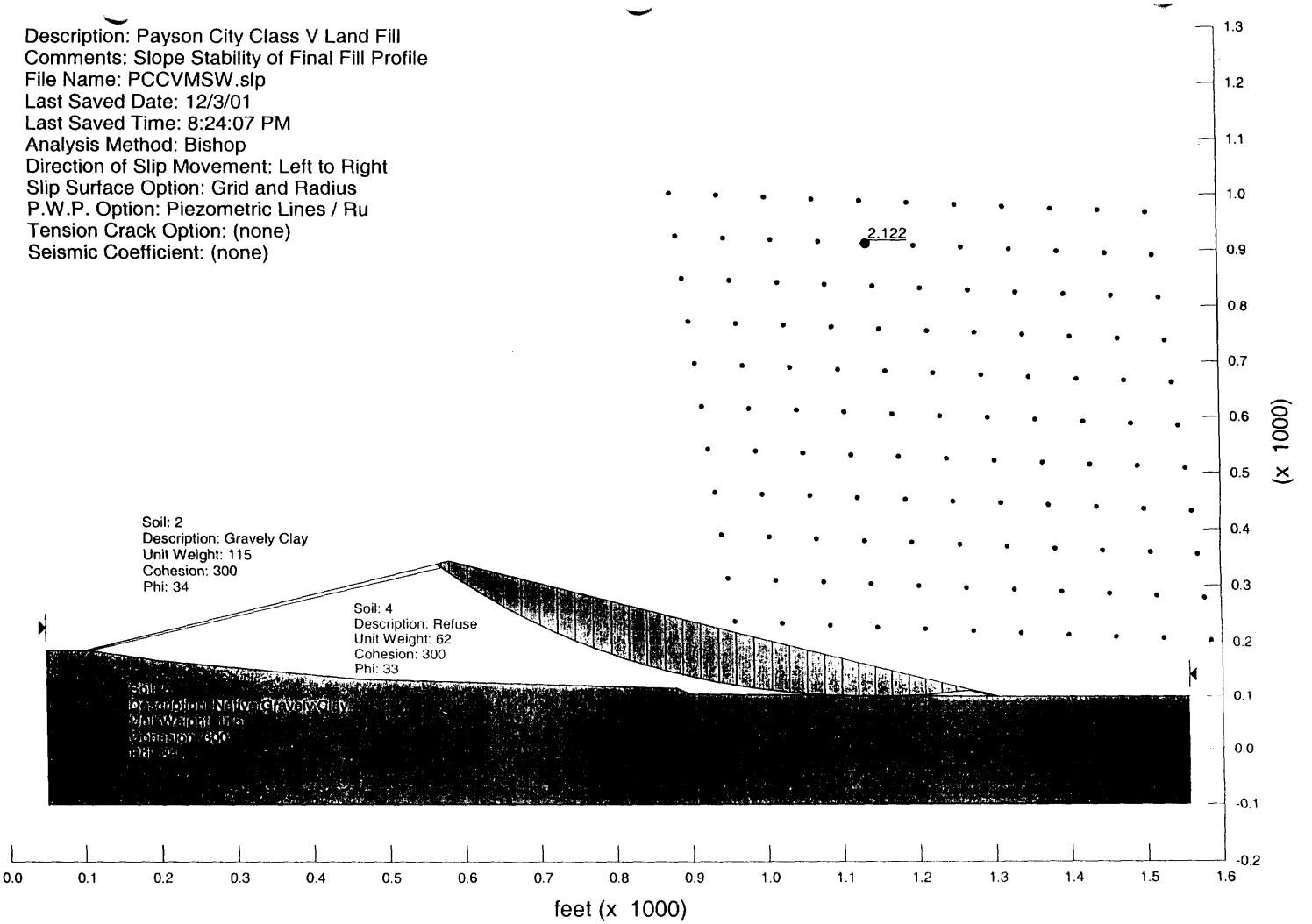
Slip Surface Option: Grid and Radius
P.W.P. Option: Piezometric Lines / Ru
Tension Crack Option: (none)
Seismic Coefficient: (none)



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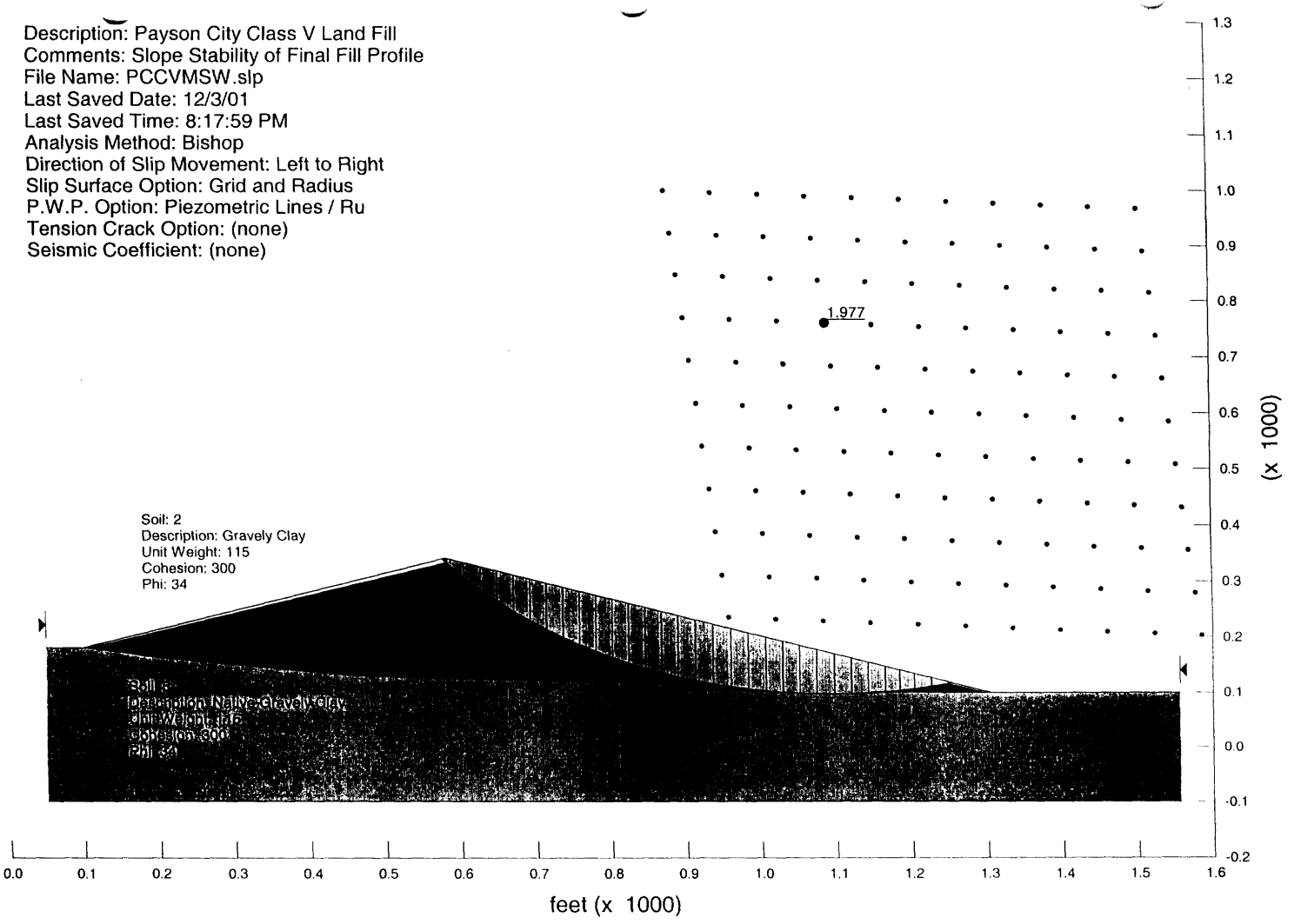
P.W.P. Option: Piezometric Lines / Ru
Tension Crack Option: (none)
Seismic Coefficient: (none)



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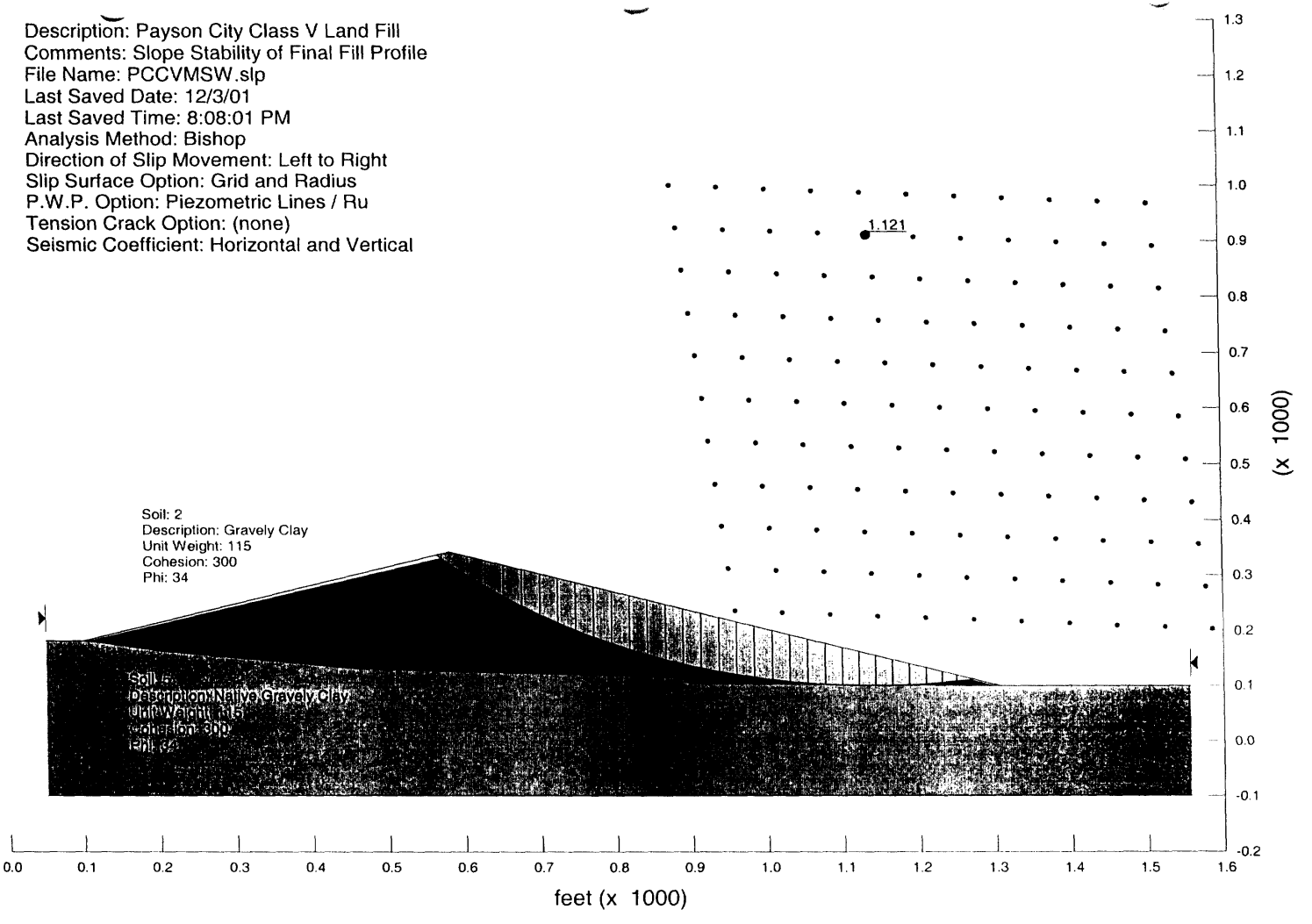
P.W.P. Option: Piezometric Lines / Ru
Tension Crack Option: (none)
Seismic Coefficient: Horizontal and Vertical

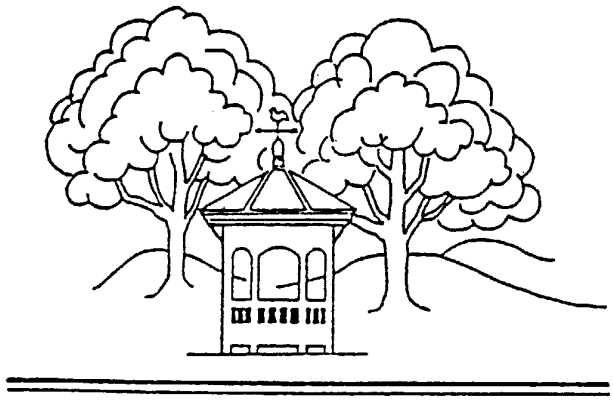


ENGINEERING STUDY

FOR

PAYSON CITY CORPORATION

SANITARY LANDFILL STORM DRAINAGE



NOVEMBER 1992

PERKINS-THURGOOD Consulting Engineers, Inc.

PERKINS-THURGOOD Consulting Engineers, Inc.

November 13, 1992

Kent Fowden
Solid Waste Superintendent
Payson City Corporation
439 West Utah Avenue
Payson, Utah 84651

Re: Sanitary Landfill Drainage Study

Dear Kent:

We have completed a study to define the quantity of storm water runoff from the Payson City Sanitary Landfill Property located on the eastern slope of West Mountain. This study was completed at the request of Payson City for the purpose of determining the runoff volume and of sizing storm water facilities to properly manage that runoff.

General

The property owned by Payson City, a portion of which is being used for the Sanitary Landfill, is a part of a 764 acre drainage basin located in portions of Sections 9, 10, 15, and 16 of Township 9 South, Range 1 East, Salt Lake Base and Meridian. The boundaries of the drainage basin and the boundaries of the property owned by Payson City, as well as that portion being used for the landfill, are shown on the following vicinity map.

The drainage basin is predominately covered with sagebrush with underlying grasses. The extreme westerly portion of the drainage basin rises to an elevation of 6,440 feet and the lowest point of the drainage basin is about 4,757 feet. The upper reaches have a steeper gradient and a sparser vegetation, gentling out as you move eastward through the drainage basin to a more gentle slope before reaching the valley floor. Drainage from the basin is from west to east. The total area owned by Payson City is approximately 195 acres of which 131.7 acres is presently planned for landfill use.

386 East 720 South / Orem, Utah 84058 / (801) 226-0393 / Fax (801) 226-0394

The runoff analysis was made using a 24-hour 25-year return frequency storm. The rainfall used in the analysis was taken from the NOAA Atlas 2, and is 2.2 inches. The analysis was made using the storm water simulation program TR-55 developed by the Soil Conservation Service. A Type II rainfall distribution was used.

Storm Water Analysis

Analysis showed that the most critical area to produce runoff was that area which has been and is presently being used for solid waste disposal. This is because the weighted curve number, which is an indicator of the amount of runoff to be expected, was highest using the smaller drainage basin. When analyzing the total area, 131.7 acres, planned for use for waste disposal the weighted curve number is 61 versus a weighted curve number of 65 for the area which has been or is now in use for disposal of wastes, 91.7 acres. In the analysis a hydrologic soil group B was used. This soil group was obtained from the Soil Survey of Utah County, Utah Central Part, prepared by the Soil Conservation Service.

The Drainage area was divided into those areas actively being used for waste disposal which have had the vegetative cover removed, and those areas which have natural vegetation still in place or have been revegetated following covering of the wastes. These areas are shown on the attached aerial topography maps. The area from which the vegetation has been removed is 35.81 acres, and the area which remains in natural vegetation or has been restored is 55.9 acres.

Examination of the aerial contour maps shows that the runoff is primarily channeled down the access roads and collects at the northeast corner of the property. This is the point that was used to determine the peak runoff as well as the runoff volume from the landfill.

The results of the analysis show that the peak discharge would be 11 cfs and that the runoff volume would be 1.84 acre/feet, a copy of the computer run and the storm runoff hydrograph are included herein. The storm water will be retained in a basin facility with the outlet from the basin to be by percolation into the subsurface soils. The range of percolation given by the Soil Conservation Service for the area in which the retention basin would be located was 0.8 to 2.5 inches per hour. Using the lower end of the permeability range and emptying the basin in a 24-hour period requires a bottom area of 1.25 acres. There is

sufficient space between the east end of the area being used for the landfill and the east property line of the city's property to construct this retention basin. A preliminary layout of the retention basin has been shown on the accompanying aerial contour maps. The maximum depth of water that might be expected in the pond during the design storm event is approximately 8 inches.

Conclusions and Recommendations

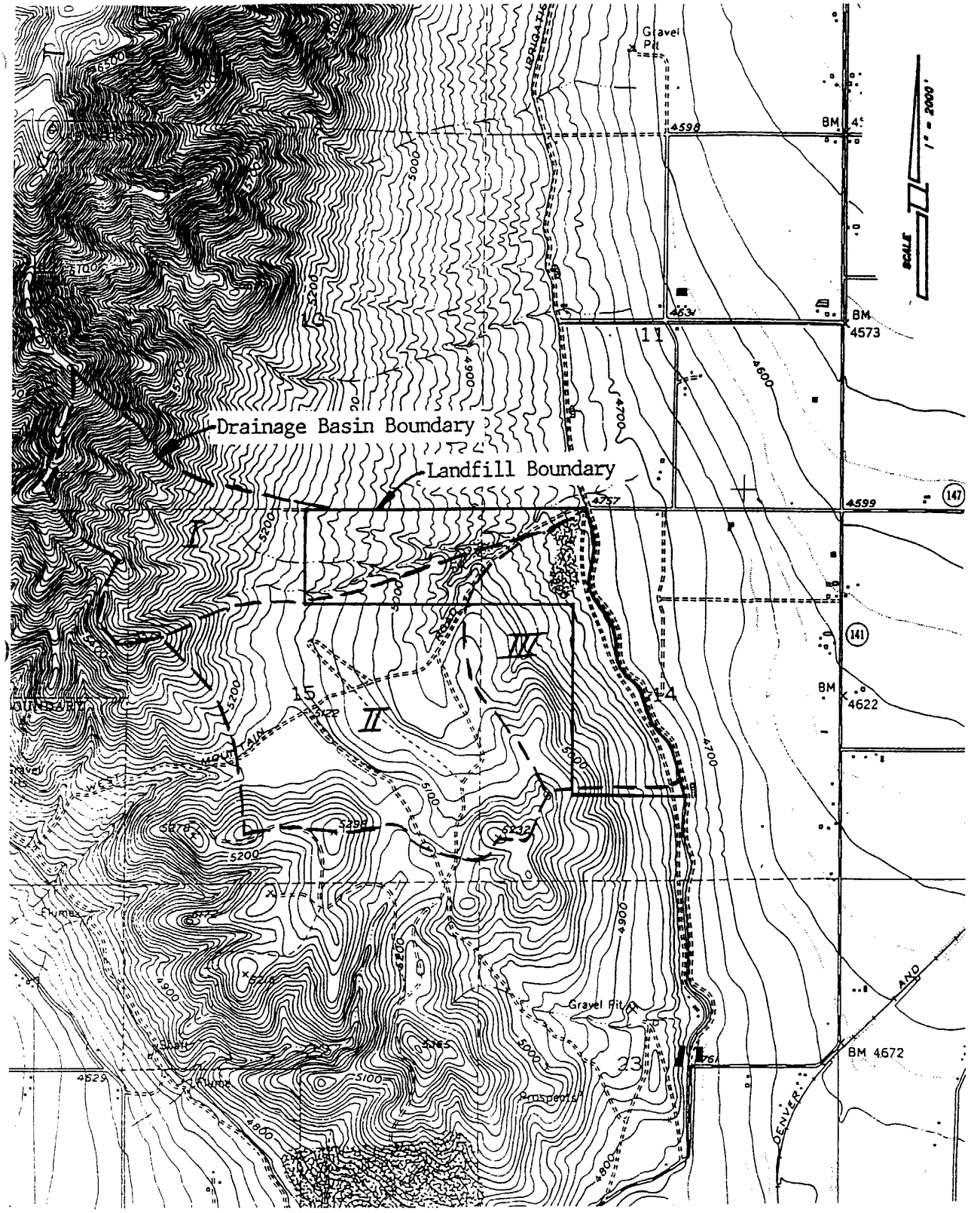
The conclusions are that a storm water retention pond be constructed in the area immediately east and downstream from the area being used as the landfill. The size of this pond needs to be that indicated on accompanying drawings and as stated above. The grading of the landfill area needs to be carried out in such a manner that all surface flow will be directed to the northeast corner of the property and that catch basins, manholes, and pipes be installed to carry all of the surface runoff to the retention basin. We would recommend that operation of the landfill be carried out in such a manner as to not increase the percentage of area from which natural vegetation has been removed. We would also recommend that grading of the peripheral area around the property being used as the landfill be done in such a manner as to prevent runon from upstream drainages. This primarily needs to be done along the west and south edges of the property.

Preliminary costs to construct the retention basin, catch basins, and associated piping have been estimated to be $63,705.00. A copy of the cost estimate is included herein.

We appreciate the opportunity to work with you regarding this study and are confident that the implementation of the recommendations contained herein will adequately handle the storm runoff from the landfill property.

Sincerely,
PERKINS-THURGOOD Consulting Engineers, Inc.

David C. Thurgood, P.E.
Area Manager



PERKINS–THURGOOD
CONSULTING ENGINEERS INC.

PAYSON CITY CORPORATION
SANITARY LANDFILL
VICINITY MAP/DRAINAGE BASIN

DATE	NOV 1992
SCALE	1"=2000'
PROJECT NO.	92032

TR-55 CURVE NUMBER COMPUTATION VERSION 1.11

Project : PAYSON LANDFILL User: DCT Date: 10-22-92
County : UTAH State: UT Checked: ____ Date: _____
Su itle: PRESENT LANDFILL WITH OPEN AND COVERED AREAS - SEPT 1992
Subarea : USED

COVER DESCRIPTION			Hydrologic Soil Group A	B	C	D
				Acres (CN)		
CULTIVATED AGRICULTURAL LANDS						
Fallow	Bare soil	----	-	35.8(86)	-	-
ARID AND SEMIARID RANGELANDS						
Sagebrush (w/ grass understory)		fair	-	55.9(51)	-	-
Total Area (by Hydrologic Soil Group)				91.7		

SUBAREA: USED TOTAL DRAINAGE AREA: 91.7 Acres WEIGHTED CURVE NUMBER:65

TR-55 Tc and Tt THRU SUBAREA COMPUTATION VERSION 1.11

Project : PAYSON LANDFILL User: DCT Date: 10-22-92
County : UTAH State: UT Checked: ____ Date: _____
Subtitle: PRESENT LANDFILL WITH OPEN AND COVERED AREAS - SEPT 1992

Subarea #1 - USED

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	1.2	300	.0625	A					0.050
Shallow Concent'd		2010	.0587	U					0.143
Open Channel		210	.0667		.0112		4.47		0.003
						Time of Concentration =			0.20*
									=====

--- Sheet Flow Surface Codes ---

A Smooth Surface
B Fallow (No Res.)
C Cultivated < 20 % Res.
D Cultivated > 20 % Res.
E Grass-Range, Short
F Grass, Dense
G Grass, Burmuda
H Woods, Light
I Woods, Dense

--- Shallow Concentrated --- Surface Codes ---

P Paved
U Unpaved

* - Generated for use by TABULAR method

TR-55 TABULAR DISCHARGE METHOD VERSION 1.11

Project : PAYSON LANDFILL User: DCT Date: 10-22-92
County : UTAH State: UT Checked: ____ Date: _____
Subtitle: PRESENT LANDFILL WITH OPEN AND COVERED AREAS - SEPT 1992

Total watershed area: 0.143 sq mi Rainfall type: II Frequency: 25 years

---------- Subareas ----------

	USED
Area(sq mi)	0.14*
Rainfall(in)	2.2
Curve number	65*
Runoff(in)	0.19
Tc (hrs)	0.20*
TimeToOutlet	0.00
Ia/P	0.49

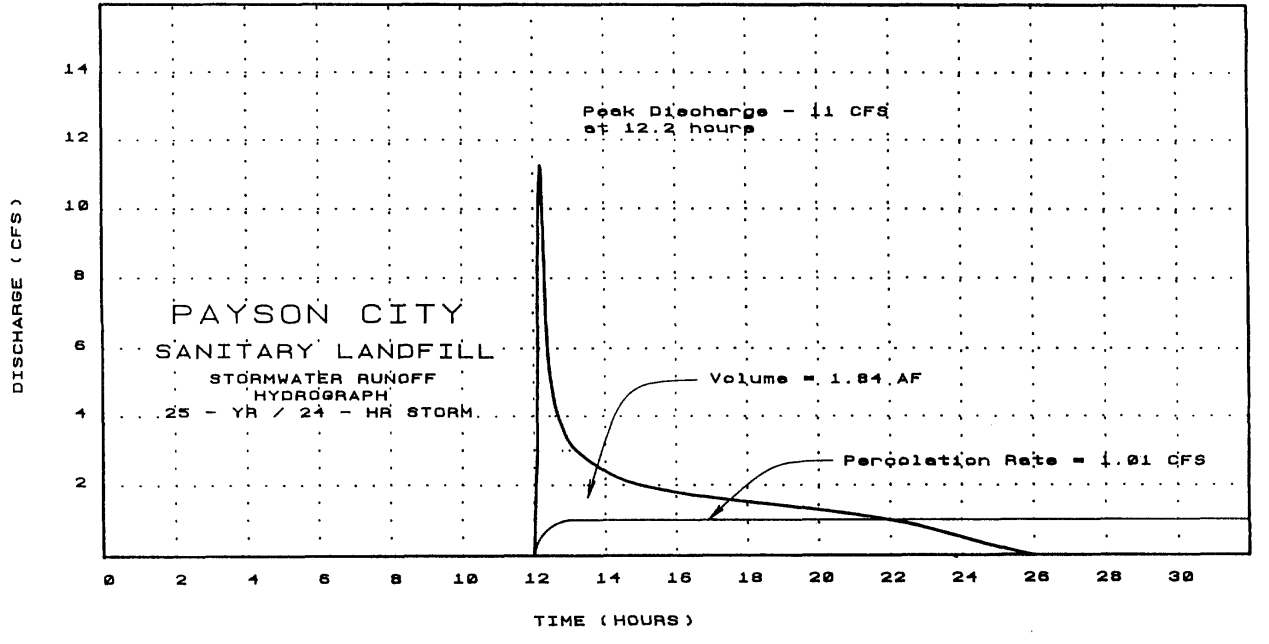
Time (hr)	Total Flow	Subarea Contribution to Total Flow (cfs) USED
11.0	0	0
11.3	0	0
11.6	0	0
11.9	0	0
12.0	0	0
12.1	3	3
12.2	11P	11P
12.3	9	9
12.4	6	6
12.5	5	5
12.6	4	4
12.7	4	4
12.8	3	3
13.0	3	3
13.2	3	3
13.4	2	2
13.6	2	2
13.8	2	2
14.0	2	2
14.3	2	2
14.6	2	2
15.0	2	2
15.5	1	1
16.0	1	1
16.5	1	1
17.0	1	1
17.5	1	1
18.0	1	1
19.0	1	1
20.0	1	1
22.0	1	1
26.0	0	0

P - Peak Flow * - value(s) provided from TR-55 system routines

TR-55 STORAGE VOLUME FOR DETENTION BASINS VERSION 1.11

Project : PAYSON LANDFILL User: DCT Date: 10-22-92
County : UTAH State: UT Checked: ____ Date: _____
Sub Title: PRESENT LANDFILL WITH OPEN AND COVERED AREAS - SEPT 1992

Drainage Area: .1432813 Sq miles Rainfall Frequency: 25 years
Rainfall-Type: II
Runoff: 0.2 inches
Peak Inflow: 11 cfs
Peak Outflow: 1.1 cfs
Detention Basin Storage Volume: 0.11 inches or 0.8 acre feet


PAYSON CITY
SANITARY LANDFILL
STORMWATER RUNOFF
HYDROGRAPH
25 - YR / 24 - HR STORM
Peak Discharge = 11 CFS
at 12.2 hours
Volume = 1.84 AF
Percolation Rate = 1.01 CFS
DISCHARGE (CFS)
TIME (HOURS)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30

PAYSON CITY CORPORATION
DRAINAGE STUDY - LANDFILL
PROJECT 92032
ENGINEERS OPINION OF PROBABLE COST
11/06/92 PRINTED

ENGINEER'S ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
1.	Clear, strip and grub the construction site. Approx. 2.22 acres.	1	JOB	$2,500.00	$2,500.00
2.	Remove and stockpile topsoil for later use. Approx. 3,600 cubic yards.	1	JOB	$4,500.00	$4,500.00
3.	Furnish and install 18" storm drain pipeline.	210	LF	$26.00	$5,460.00
4.	Furnish and construct storm drain inlet box.	2	EACH	$1,500.00	$3,000.00
5.	Furnish and construct 48-inch diameter drop manhole.	1	EACH	$2,000.00	$2,000.00
6.	Furnish and construct concrete splash block at storage basin.	1	JOB	$400.00	$400.00
7.	Storage basin earthwork, including excavation and construction of dike. Excavation is approximately 11,700 cubic yards.	1	JOB	$26,325.00	$26,325.00
8.	Place 6 inches of topsoil over all exposed cut and fill slopes.	1	JOB	$5,000.00	$5,000.00
9.	Furnish and construct 6-foot chain link fence.	1320	LF	$11.00	$14,520.00

TOTAL ESTIMATED PRICE: $63,705.00

GEOHYDROLOGICAL ASSESSMENT REPORT

Prepared for

PAYSON CITY CORPORATION
439 West Utah Avenue
Payson, Utah 84651

Prepared by

BINGHAM ENVIRONMENTAL, INC.
5160 Wiley Post Way
Salt Lake City, Utah 84116

October 8, 1996

LIST OF FIGURES

LIST OF ATTACHMENTS

SECTION ONE

INTRODUCTION

Payson City operates a Class I municipal landfill west of the city on the southeast flank of West Mountain (see Figure 1). Payson City is in the process of completing the permit application required by the Utah Division of Solid and Hazardous Waste. This geohydrological assessment report has been prepared to satisfy requirements of the State of Utah Solid Waste Permitting and Management Rules (Rules), Section R315-310-4(2)(b) and provide detailed geohydrologic information for the site.

SECTION TWO

GEOLOGY

2.1 REGIONAL GEOLOGY

Payson City Landfill is located within Southern Utah Valley, which is part of a larger area called Utah Lake Valley. The area is located on the eastern edge of the Basin and Range physiographic province. The Wasatch Range (part of the Middle Rocky Mountain physiographic province) bounds the area to the east. The area is a typical basin and range environment, characterized by steep mountain fronts bounding a fairly level valley floor.

Utah Valley was formed by a dropped fault block bounded on the east by the Wasatch Fault and on the west by a concealed fault zone. Although the Wasatch Fault is traceable on the surface, the fault which would bound the west side of the valley (along the Eastern side of West Mountain) has only been indicated through the use of a gravity survey (Cook, 1961). The presumed fault zone extends from near Santequin northward paralleling the east side of West Mountain (Cordova, 1970).

The valley fill is comprised of unconsolidated to cemented and compacted lacustrine, alluvial and fluvial material derived from the weathering of the bordering mountains during Tertiary and Quaternary time. The thickness of the basin fill is variable. Tertiary and Paleozoic age rocks are exposed north and west of Payson, yet some geologists estimate that near Spanish Fork, the top of the Paleozoic formations may be at least 18,000 feet below the land surface (Brooks, 1995). During the Cenozoic Era, southern Utah and Goshen Valleys contained numerous lakes, the largest being Lake Bonneville. Southern Utah Valley has sediments deposited in ancient Lake Bonneville, in alluvial fans, and in stream channels. The valley floor deposits, which formed in Lake Bonneville, consist of fine grained lake bottom sediments, and coarser grained spits, bars, and deltas which are found at altitudes below 5135 feet. Above this altitude are ancient and recent alluvial fans and stream channel deposits (Cordova, 1970).

2.2 LOCAL GEOLOGY

As indicated in Figure 2 (Regional Geologic Map) the facility is situated on the southeastern flank of West Mountain, which is composed mainly of Paleozoic Rocks, Cretaceous-Tertiary strata, and Tertiary Rocks (Davis, 1983). The Paleozoic rocks consist mainly of limestone, quartzite, shale, dolomite, and sandstone. The Cretaceous-Tertiary rocks consist of the North Horn Formation conglomerate. Several small outcrops of the Tertiary-aged Flagstaff Formation, a fresh water limestone, are located on the peak of West Mountain. The facility is situated on the Provo level of Lake Bonneville and shoreline deposits typically occur in the vicinity of the site.

The landfill site ranges in altitude from 4760 to 4940 feet (see Figure 3, Site Map). The landfill is situated mainly on the following formations (Davis, 1983):

- Pleistocene-age Alpine Formation, which is chiefly offshore facies of clay, silt, and fine sand in thin beds.
- Pleistocene-age Provo Formation and younger shore facies, consisting of sand and gravel in beach deposits, bars, spits, and deltas.
- Local outcrops of Cretaceous-age North Horn Formation, consisting of conglomerate, shale and siltstone.
- Local outcrops of Pennsylvanian-age Oquirrh Formation, consisting of cherty limestone, quartzite, and quartzitic sandstone.

Bedrock underlying the site is composed of limestone with occasional sandstone layers, and was encountered approximately 150 feet below the ground surface in monitor well MW-2 (see Figure 3).

The nearest mapped fault in the vicinity of the landfill is an east-west trending normal fault located approximately 4,600 feet south of the site. The area of the site is designated as having very low liquefaction potential (Anderson, 1986). Two minor earthquakes which occurred during the time interval between 1962 and the present and exhibiting estimated Richter magnitudes of 2.0 are mapped within approximately 1,250 feet of the site (Hall, 1990). There is no evidence of any areas of subsidence near the landfill site.

SECTION THREE

HYDROGEOLOGY

3.1 REGIONAL HYDROGEOLOGY

The main groundwater system in southern Utah Valley is in the unconsolidated basin-fill deposits, which consist of interbedded lenticular deposits of gravel, sand, silt, and clay (Brooks, 1995). The deposits were formed by lacustrine, alluvial, and fluvial processes, depending upon the level of the valley lakes and location of streams at the time of deposition. Along the mountain fronts, colluvial processes have resulted in the deposition of poorly sorted clay, sand and gravel deposits. Away from the mountain fronts, on benches and alluvial fans, lacustrine processes resulted in the deposition of well-sorted sand and gravel deposits and well-sorted clay deposits (Brooks, 1995)

Groundwater within southern Utah Valley occurs under both unconfined and confined conditions. Groundwater is unconfined in the coarse-grained deposits near the mountain front, but becomes confined toward the center of the valley as clay lenses become more predominant (Brooks, 1995). The confined zones in the valley center are extensions of the unconfined zones near the mountains.

3.2 LOCAL HYDROGEOLOGY

Groundwater information in and adjacent to the Payson City Landfill, available prior to installing the monitor wells, indicated that the direction of groundwater flow was toward the east and/or northeast, which would parallel the surface topography at the site. Based on this information MW-2 was drilled on the west side of the landfill to provide and upgradient monitor well and MW-3 was drilled on the east side of the landfill to provide a second downgradient monitor well.

Groundwater at the site was encountered at a depth of 221 to 225 feet below the ground surface east of the landfill cell within unconsolidated deposits of sandy gravel and 405 feet below the ground surface west of the landfill cell within the limestone bedrock (see the drilling logs included in Attachment 4). The deposits are typical of the Lake Bonneville shoreline depositional environment. The aquifer encountered in each of the wells is unconfined.

Three monitor wells presently exist at the site. Wells MW-1 and MW-3 are located east of the landfill cell and MW-2 is located west of the landfill cell (see Figure 3). The following table indicates the depth to water and corresponding elevation of the groundwater in each of the site wells on September 10, 1996.

Table 1
Groundwater Elevations

Well	TOC* Elevation (feet)	Depth to Water** (feet)	Groundwater Elevation (feet)
MW-1	4760.47	221.23	4539.24
MW-2	4944.59	404.72	4539.87
MW-3	4765.37	225.50	4539.87

* TOC - Top of PVC well casing; elevation measured in feet above mean sea level by Payson City.
** Depth to water measured from top of casing on September 10, 1996.

The groundwater elevation data indicates a very flat gradient across the site. It is likely that the groundwater elevation is seasonal and is influenced by run-off from West Mountain during the winter and spring months. As more information is gathered during the monitoring events, the gradient should be further evaluated and the estimated flow direction better defined. The likely direction of flow of the groundwater, based on the topography, is east-northeast: east from the mountain front into the valley and north toward Utah Lake. The present data is not sufficient to calculate and provide a groundwater contour map.

Slug tests were performed on each of the wells in order to estimate the hydraulic conductivity of the aquifer. The test results are included in Attachment 1. For the tests, a 5-gallon slug of water was introduced into each well and the water level was measured against time until the water level stabilized. Data is analyzed by computer using four separate methods: the Hvorslev method; the Cooper, Bredehoeft, and Papadopulos method; the Ferris and Knowles method; and the Bouwer method. The hydraulic conductivity was estimated for each well as follows:

MW-1 4.8 E-5 cm/sec
MW-2 6.4 E-8 cm/sec
MW-3 4.1 E-4 cm/sec

MW-1 and MW-3 were screened within unconsolidated deposits of gravelly sand (see drilling log, Attachment 4). MW-2 was screened within the limestone bedrock underlying the site. Figure 4 provides a geologic cross section through MW-2 and MW-3.

3.2.1 Water Rights

A search of water rights on file with the Division of Water Rights was conducted for an area within a 2000 foot radius from the site. The results of the search are included in Attachment 2. The search encountered only two water rights:

- A well approximately 1400 feet northeast of the landfill front gate; 8-inch diameter and 174 feet deep used for irrigation, stockwatering, and domestic purposes.

- A well approximately 1500 feet east of the landfill front gate; 6-inch diameter and 500 feet deep used for irrigation, stockwatering, and domestic purposes.

3.3 GROUNDWATER QUALITY

Groundwater samples collected and analyzed from 1959 to 1991 from wells completed in the unconsolidated basin fill deposits in southern Utah Valley indicate total dissolved solids (TDS) concentrations between 200 and 400 mg/L, with a few samples having concentrations as high as 1,000 mg/L (Stolp, 1993). Shallower groundwater typically has higher concentrations of dissolved solids. Groundwater east of West Mountain is bicarbonate (HCO_3) type (Cordova, 1970). Based on the TDS concentrations, the groundwater would be classified as Class IA, pristine groundwater.

3.4 SURFACE WATER

Much of Southern Utah Valley and Goshen Valley drains to Utah Lake through sloughs and manmade drains. Utah Lake is located approximately 3.4 miles northwest of the site on the other side of West Mountain; however, drainage from the area of the site along the east side of West Mountain enters Utah Lake approximately 6.8 miles to the north. Many miles of closed and open drains empty water directly into Utah Lake or into natural waterways which drain to Utah Lake making farming possible in the lower parts of the plain, where a shallow water table was a major problem in the past. Utah Lake has been operated as a reservoir since 1884, when the first dam was constructed on the Jordan River (Brooks, 1995). The elevation of the lake surface is designed to be 4489 feet.

The nearest surface water to the site is the Strawberry Highland Lateral irrigation canal, located approximately 200 to 300 feet east of the landfill cell area (see Figures 3 and 5). An ephemeral stream is located approximately 2300 to 2800 feet north of the landfill cell area. No water flow has been observed in this stream. It is reported that ephemeral run-off from the mountains surrounding southern Utah Valley occurs only in direct response to spring melting of mountain snow or during intense summer thunderstorms, and that most of the flow infiltrates the unconsolidated basin-fill deposits as the flow crosses alluvial fans or gravel deposits adjacent to the mountains (Brooks, 1995)

Dissolved solids concentration of surface water within southern Utah Valley ranges from 359 mg/L to 3,410 mg/L. Samples collected from Benjamin Slough (approximately 6.2 miles from the site) had a dissolved solids concentration that ranged from 692 mg/L to 1,540 mg/L.

3.5 WATER BALANCE

The water balance of the disposal cell was modeled using version 3.05 of the Hydrologic Evaluation of Landfill Performance (HELP) computer model (Schroeder, 1995). HELP modeling of the proposed landfill cell was performed to evaluate the potential for water to percolate through the municipal solid waste (MSW) and into the subsurface soils below the site, eventually reaching groundwater below the site.

The landfill water balance was modeled for a time period of 30 years under post-closure conditions. Site specific values of climatological data, soil and waste profile, and surface conditions were used to construct the model. Some of the assumptions used in the model are:

- Post-closure conditions
- Modeling period of 30 years
- Synthetic precipitation record generated using monthly records from Payson weather station (Ashcroft, 1992)
- Synthetic temperature record generated using monthly records from Spanish Fork Powerhouse weather station (Ashcroft, 1992)
- Synthetic solar radiation record generated using site latitude of 40.04 degrees
- Surface slope of 33 percent with an average stand of grass
- Initial water content of layers specified by model as nearly steady state values

The soil profile used in the model is summarized in Table 2. Hydraulic conductivity numbers are the default values provided by the HELP model for the given soil types.

Table 2

HELP MODELING
Soil Profile

Layer	Description	Soil Type	Estimated Hydraulic Conductivity (cm/sec)	Thickness (inches)
1	Topsoil	Loam	3.7 E-1	12
2	Moderately Compacted Clay Cover	Clay	3.6 E-6	18
3	Intermediate Cover	Sandy Clay	2.7 E-5	12
4	Municipal Solid Waste	MSW	1.0 E-3	600
5	Native Soil	Sandy Clay	1.1 E-4	120

The HELP model provides annual values for; runoff, evapotranspiration, vertical percolation, and water storage in the soil profile based on the synthetic climatic data. Results of the HELP model are presented in Table 3.

SECTION FOUR

GROUNDWATER MONITORING SYSTEM

4.1 MONITOR WELL DESIGN AND CONSTRUCTION

Three groundwater monitor wells presently exist at the site. Two of the wells, MW-1 and MW-3, are located east of the landfill cell area and the third well, MW-2, is located west of the landfill cell area. Well MW-1 was installed by Zimmerman Well Service, Inc. in May of 1993. Monitor wells MW-2 and MW-3 were installed by Layne Environmental Services in February of 1996. Drilling logs of the wells are included in Attachment 4.

4.2 SAMPLE COLLECTION AND ANALYSIS

Samples were collected from site monitor wells using dedicated bladder pumps which were installed in the wells in September 1996. The pumps are Master-Flo Model 5625 PVC bladder pumps with polyethylene tubing. Air is supplied by either compressed air bottles or an air compressor. Air flow is regulated by a Master-Flo Model 5001 automatic cycle controller capable of regulating air pressure up to 200 psi.

The site wells were sampled on September 10 and 11, 1996 using the specified sampling equipment. The wells were purged using standard micro purging techniques. Conductivity and pH values were measured as water was purged from each well. When these parameters stabilized, the samples were collected. The water sampling data sheets are included in Attachment 5.

Samples were collected in approved certified clean sample containers and stored on ice in a cooler during shipment to a Utah State Certified analytical laboratories for analysis of the parameters listed in the table included in Attachment 5. Samples were shipped under proper chain of custody control. Level II QA/QC (matrix spike is performed on one of the project samples) was requested from the laboratory. QA/QC information is included in Attachment 5. A field blank and trip blank accompanied the samples during the entire sampling event and were submitted to the laboratory. The blanks were stored by the laboratory, to be used only as verification in the event of a contaminant hit. The blanks were not analyzed for this sampling event.

4.3 GROUNDWATER SAMPLE RESULTS

Groundwater sample results obtained from the September 10 and 11, 1996 sampling are included in Attachment 5 and summarized in Table 4. Section R315-308-2(4)(d) of the Rules states that "analysis for the heavy metals and the organic constituents from Section R315-308-4 shall be completed on unfiltered samples." Heavy metals typically occur in the sediments which may be suspended in the groundwater samples. In order to determine the effect of suspended sediments in the groundwater from the site wells, analyses was performed for both total and dissolved metals. As Table 4 indicates, a substantial difference is noted between the total and dissolved metals results, particularly for well MW-2, which contained quite a bit of suspended solids. Total values for ten

separate metals exceeded groundwater standards; however, none of the dissolved values exceeded the groundwater standards. It is apparent that the excessive metal concentrations which are observed occur within the suspended sediments within the groundwater.

The only organic compound observed above the analytical detection limits was methylene chloride, which had a concentration of 76 μg/L in well MW-2. Occasionally methylene chloride is observed in samples as a laboratory contaminant; however, QA/QC data from the laboratory does not indicate laboratory contamination.

4.4 LANDFILL GROUNDWATER SAMPLING REQUIREMENTS

According to the Rules section R315-308-2 (Groundwater Monitoring Requirements), after background groundwater levels have been established, each well is to be sampled semiannually for the parameters listed in the table included in Attachment 5. Samples will be collected using the dedicated bladder pumps which have been installed in the site monitor wells.

The following procedures are to be followed at a minimum during each sampling event:

- Prior to sampling, the depth to groundwater in each well is to be measured to the nearest 0.01 feet from the top of the PVC well casing.
- The pH, conductivity, and temperature of the water is to be measured in each well.
- Each well is to be purged using the dedicated bladder pumps installed. Measure and note the pH and conductivity with time while the well is being purged.
- When the pH and conductivity values stabilize, collect groundwater samples using appropriate clean sample containers supplied by a State of Utah Certified analytical laboratory.
- Transport the samples on ice and submit to a State of Utah Certified analytical testing laboratory for analysis of the parameters listed in the table included in Attachment 5. The laboratory must be certified in the State of Utah for each of the required constituents at the required detection limit.

4.5 CONCLUSIONS AND RECOMMENDATIONS

Groundwater measurements from the three monitor wells are insufficient to define the gradient and direction of groundwater flow. Additional groundwater level measurements should be performed at least every two months for a year to define the seasonal fluctuations and direction of groundwater flow.

SECTION FIVE

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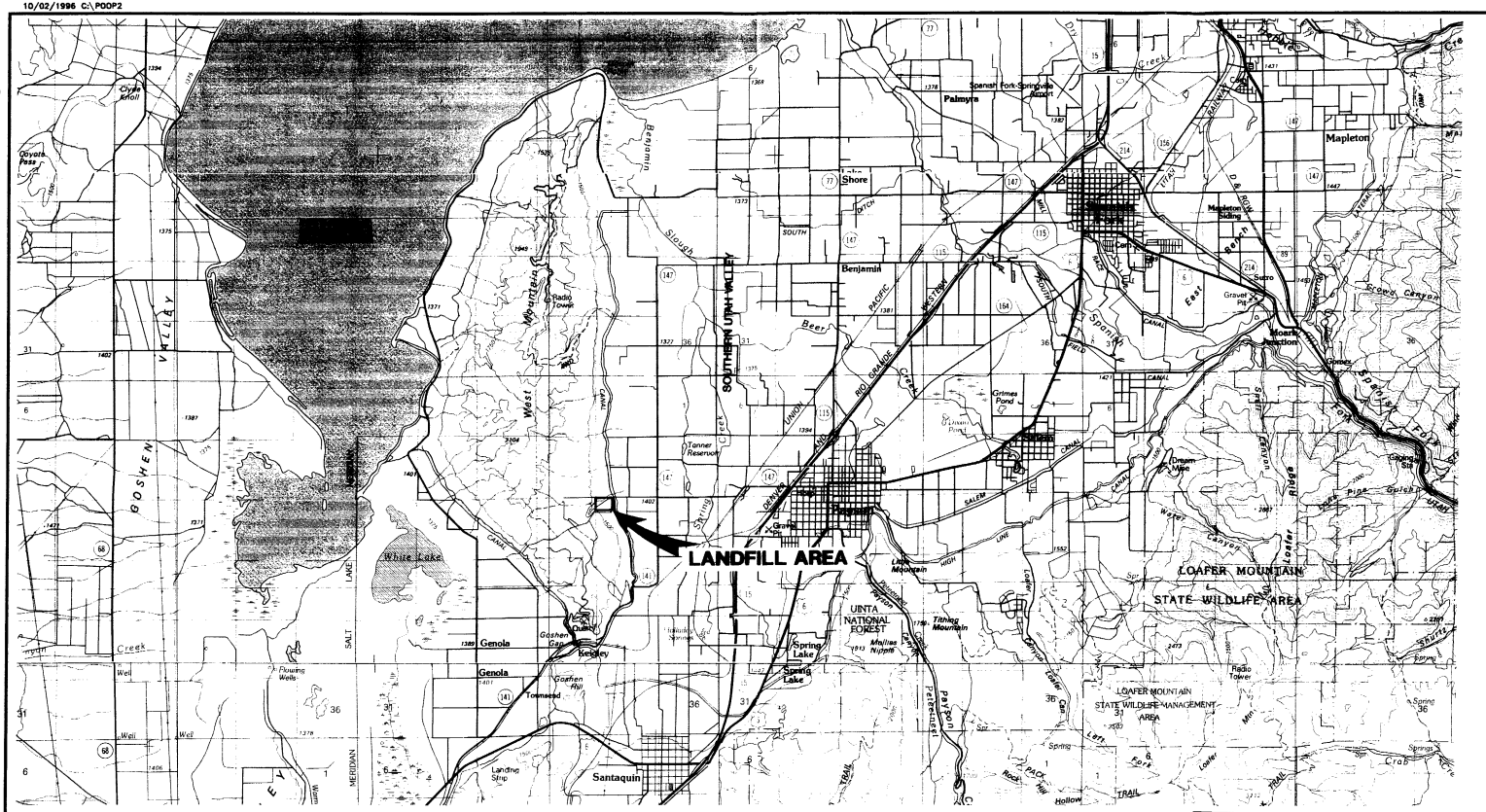
Utah Solid and Hazardous Waste Control Board, 1996, *Utah Solid Waste Permitting and Management Rules, Utah Administrative Code (R315-301 through 320)*, Utah Department of Environmental Quality, Division of Solid and Hazardous Waste.

West Mountain, Utah 7½ Topographic Quadrangle, 1994, United States Geological Survey.

APPENDIX I

Geohydrological Report and Ground Water Monitoring Well Data

10/02/1996 C:\POOP2



REFERENCE: 30 X 60 Minute Series Quadrangle, Provo, & Nephi, Utah

PAYSON CITY

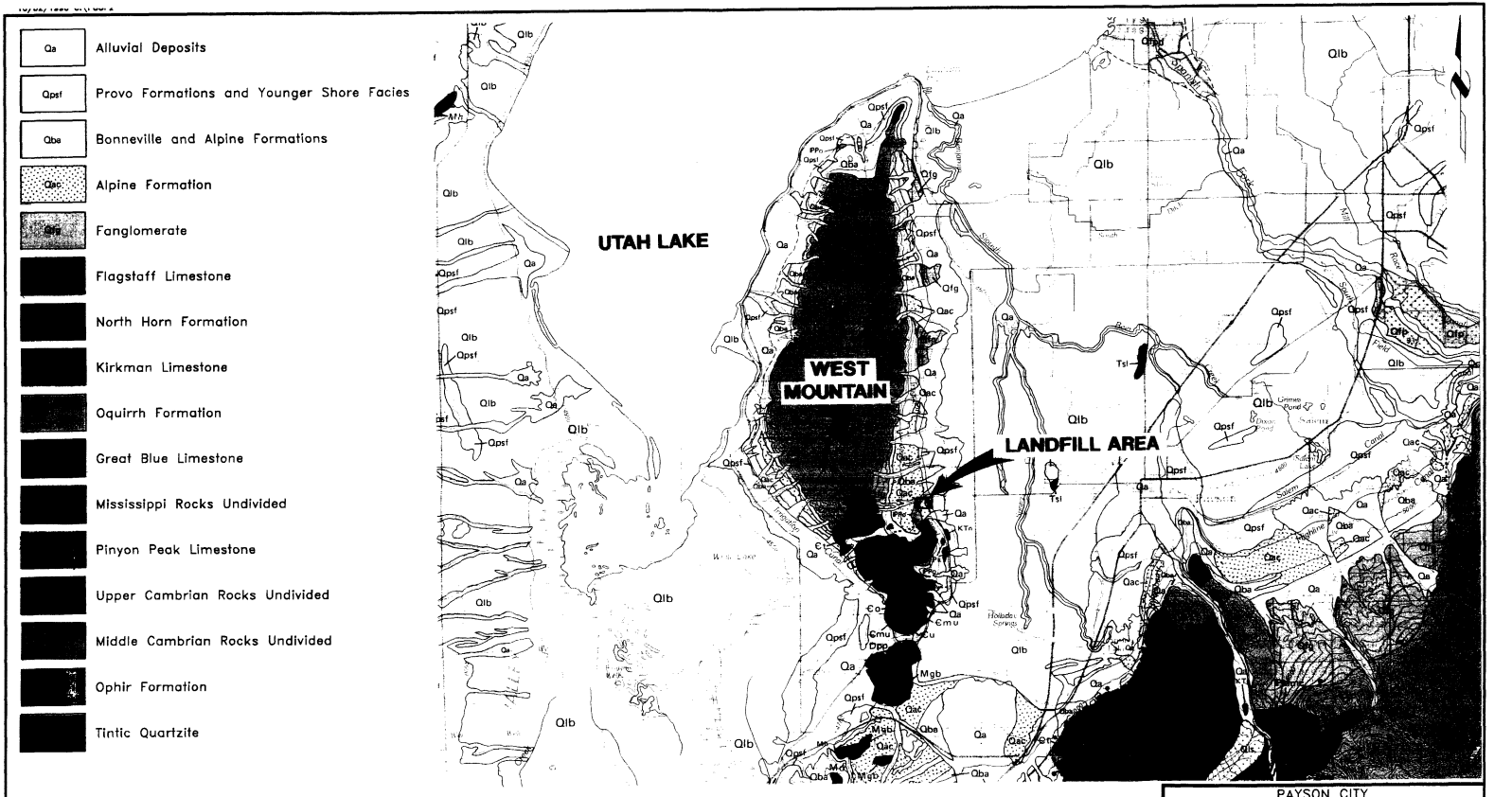
PAYSON CITY LANDFILL

VICINITY MAP

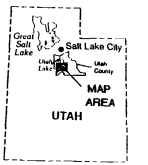
BINGHAM ENVIRONMENTAL
SALT LAKE CITY – (801) 532-2230

FIGURE 1

Date OCT. 1996 | Proj # 2469-001 | JSR



NOTE: ONLY FORMATIONS PRESENT ON WEST MOUNTAIN ARE LISTED



REFERENCE: GEOLOGICAL MAP OF THE SOUTHERN WASATCH FRONT, UTAH MAP 55-A, UTAH GEOLOGIC AND MINERAL SURVEY

PAYSON CITY

PAYSON CITY LANDFILL

REGIONAL GEOLOGIC MAP

BINGHAM ENVIRONMENTAL
SALT LAKE CITY - (801) 532-2230

FIGURE 2

Date OCT. 1996 | Proj. # 2489-001 | JSR

10/08/1996 F:\PROJ\2468\CAD\2468SM1A

PAYSON CITY CORPORATION

PAYSON CITY LANDFILL

SITE MAP

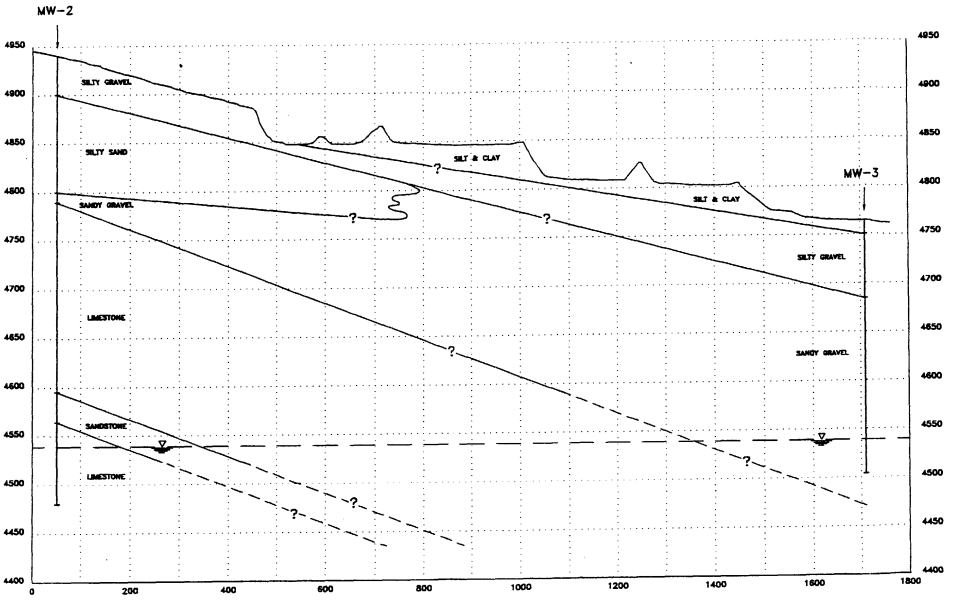
BINGHAM ENVIRONMENTAL
SALT LAKE CITY - (801) 532-2230

Designer: JSR
Drawn:
Reviewed:

Date: OCT. 1996 | Proj. # 2468-004 | FIGURE 3

TOPOGRAPHIC CONTOURS PROVIDED BY PAYSON CITY CORPORATION
CONTOURS BASED ON AERIAL SURVEY PERFORMED BY OLYMPUS AERIAL SURVEYS, ON AUGUST 20, 1992

Rev.	By	Date	Remarks



0 100 200
Scale in Feet
HORIZONTAL SCALE

0 50 100
Scale in Feet
VERTICAL SCALE

PAYSON CITY CORPORATION
PAYSON CITY LANDFILL

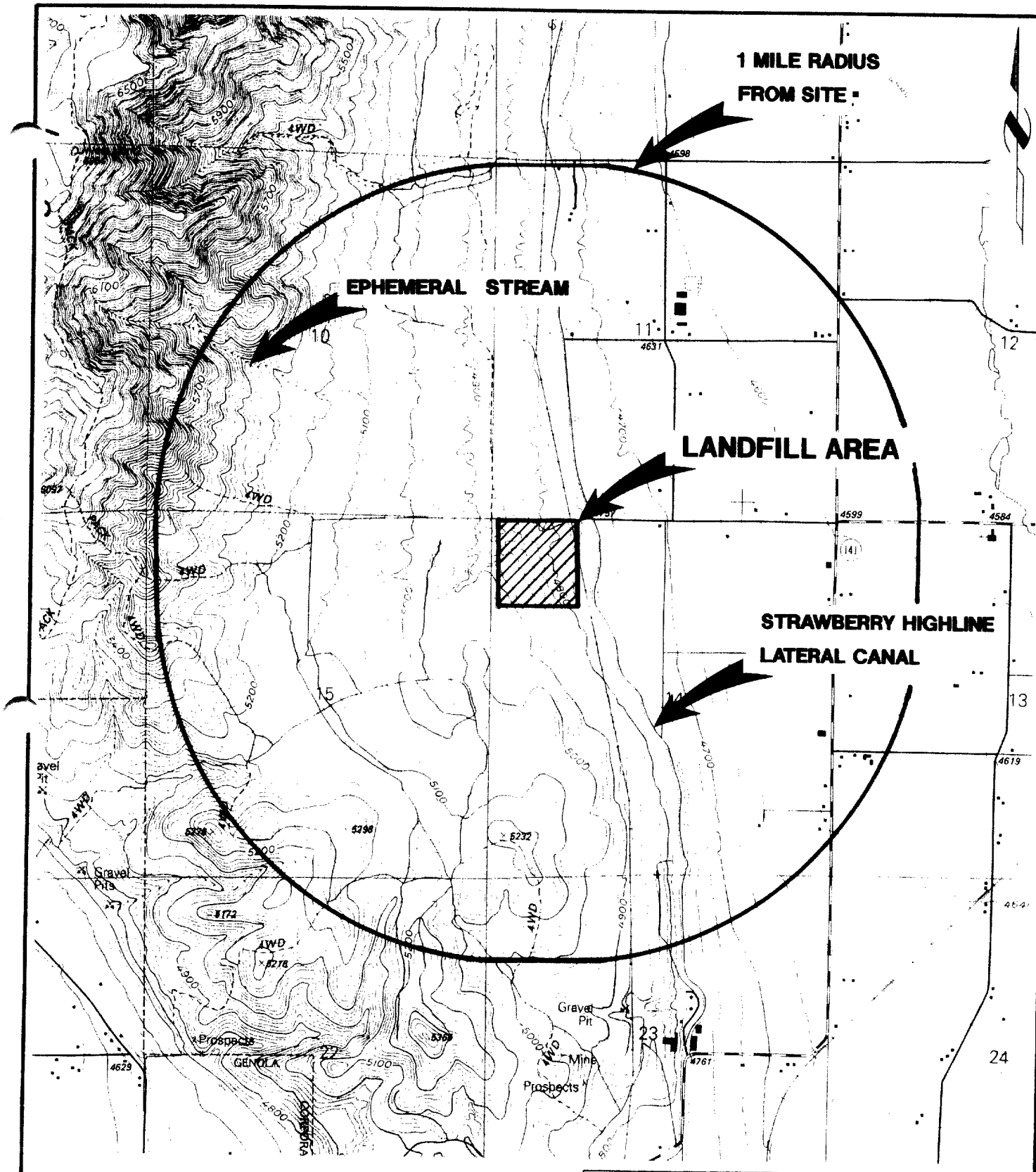
CROSS SECTION
A – A'

BINGHAM ENVIRONMENTAL
SALT LAKE CITY – (801) 532-2230

Drawn: JSR
Checked:
Reviewed:

Rev.	By	Date	Remarks

Date OCT. 1998 | Proj. # 2468-004 | FIGURE 4



0 2000 4000

Scale in Feet

Reference: U.S.G.S. 7.5 minute series Quadrangle
West Mountain, Utah

PAYSON CITY

PAYSON CITY LANDFILL

NEARBY SURFACE WATER

BINGHAM ENVIRONMENTAL
SALT LAKE CITY – (801) 532-2230

FIGURE 5

Date OCT. 1996 | Proj. # 2469-004

ATTACHMENT 1

SLUG TEST RESULTS

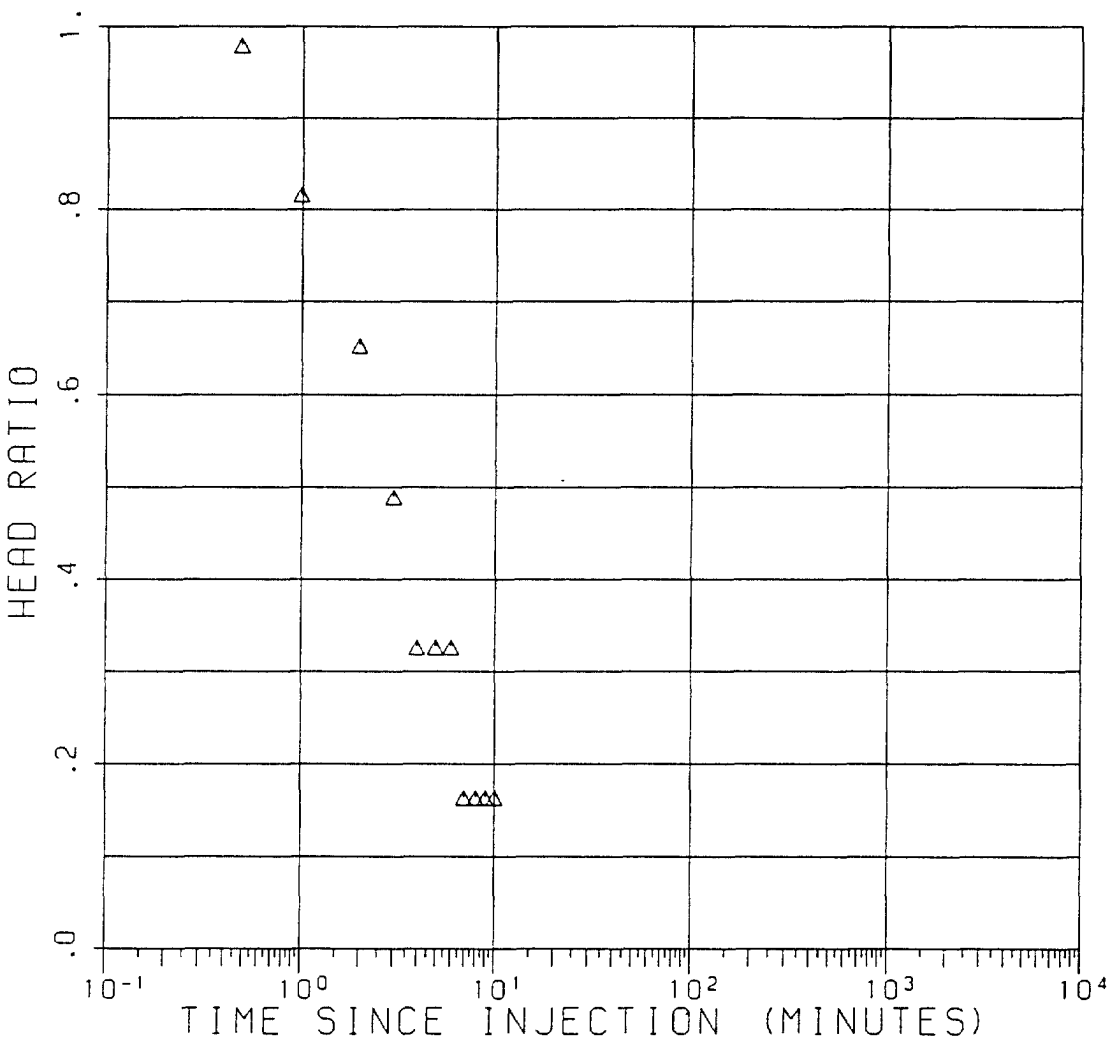
RAW DATA

WELL # MW-1

WELL DIAMETER= 6.00 INCHES
CASING DIAMETER= 2.00 INCHES
VOLUME OF WATER= .01 GALLONS
LENGTH OF AQUIFER TESTED= 30.00 FEET
VALUE OF H0= .06 FEET
STATIC WATER LEVEL= .01 FEET
LENGTH OF SCREEN= 30.00 FEET
WATER TABLE TO BOTTOM OF WELL= 51.00 FEET

SLUG TEST DATA:

TIME	WATER LEVEL (FEET)	TIME SINCE TEST BEGAN (MINUTES)
1. 0.30	.07	.48
1. 1. 0	.06	.98
1. 2. 0	.05	1.98
1. 3. 0	.04	2.98
1. 4. 0	.03	3.98
1. 5. 0	.03	4.98
1. 6. 0	.03	5.98
1. 7. 0	.02	6.98
1. 8. 0	.02	7.98
1. 9. 0	.02	8.98
1.10. 0	.02	9.98
1.11. 0	.01	10.98



SLUG TEST OF WELL MW-1

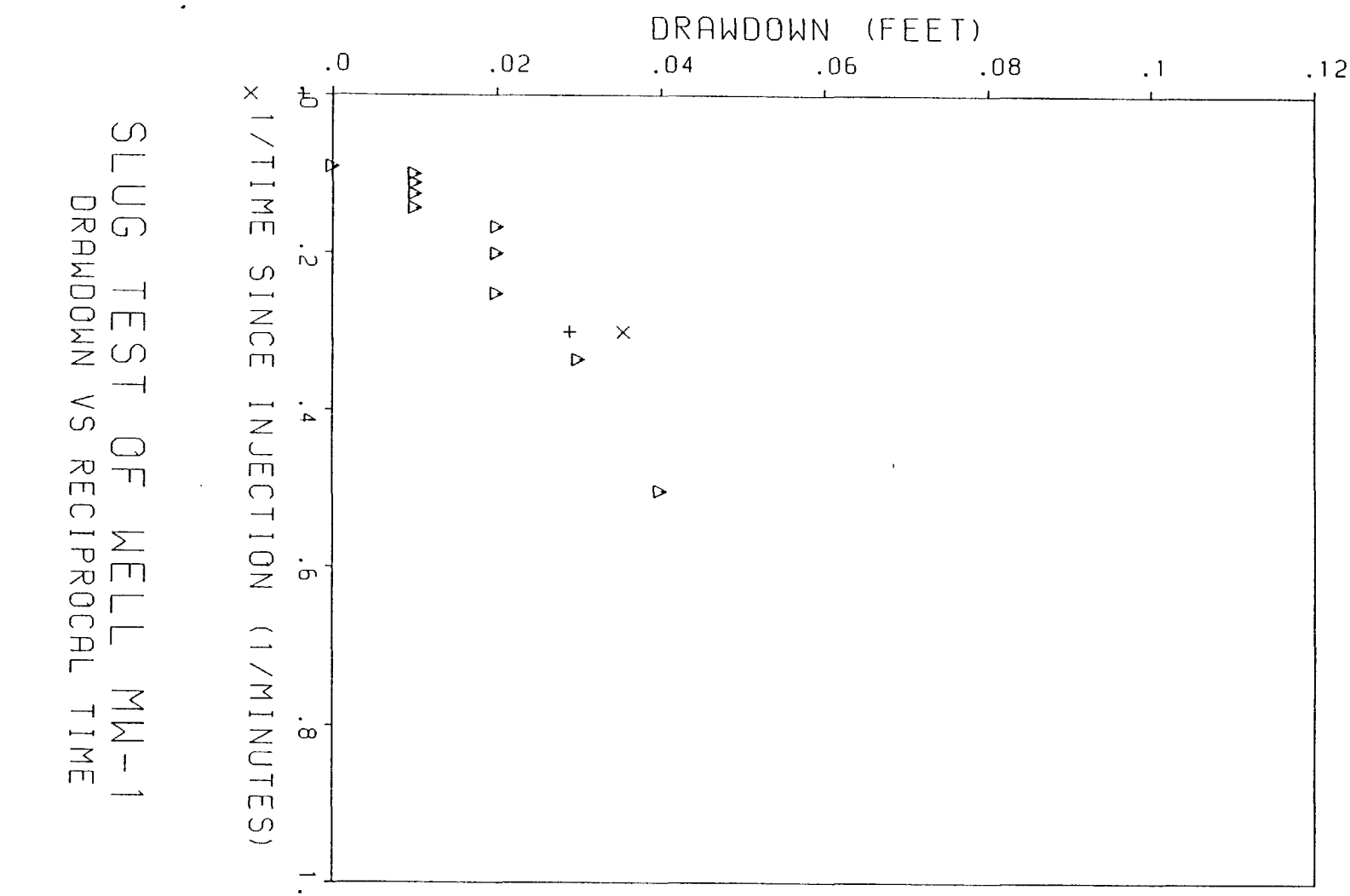
HEAD RATIO VS LOG TIME

PAYSON CITY LANDFILL

SUN 01-21-1996 11:22:15.64

PAYSON CITY LANDFILL

SUN 01-21-1996 11:22:50.07



WELL #	PERMEABILITY METHOD 1	PERMEABILITY METHOD 2	STORAGE COEF METHOD 2	PERMEABILITY METHOD 3	PERMEABILIT METHOD 4
MW-1	6.28E-05	8.96E-05	1.11E-06	1.42E-05	4.81E-05

* METHOD 1 IS HVORSLEV
METHOD 2 IS COOPER, BREDEHOEFT, AND PAPADOPULOS
METHOD 3 IS FERRIS AND KNOWLES
METHOD 4 IS BOUWER

RAW DATA

WELL # MW-2

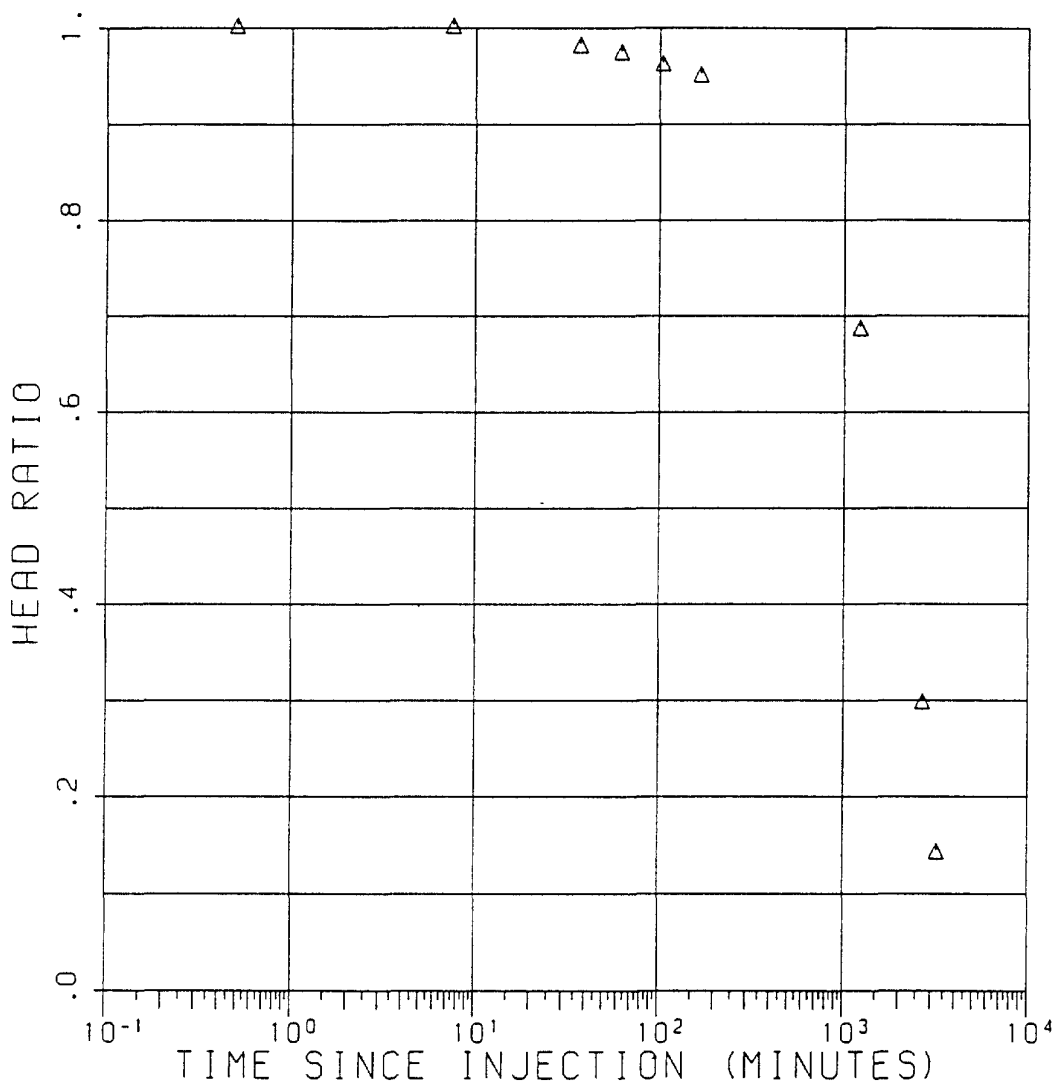
WELL DIAMETER= 6.00 INCHES
CASING DIAMETER= 2.00 INCHES
VOLUME OF WATER= .42 GALLONS
LENGTH OF AQUIFER TESTED= 46.00 FEET
VALUE OF H0= 2.57 FEET
STATIC WATER LEVEL= .01 FEET
LENGTH OF SCREEN= 70.00 FEET
WATER TABLE TO BOTTOM OF WELL= 46.00 FEET

SLUG TEST DATA:

TIME	WATER LEVEL (FEET)	TIME SINCE TEST BEGAN (MINUTES)
1. 0.30	2.59	.50
1. 7.30	2.59	7.50
1.37. 0	2.54	37.00
2. 2. 0	2.52	62.00
2.44. 0	2.49	104.00
3.47. 0	2.46	167.00
21.22. 0	1.78	1222.00
45.56. 0	.78	2696.00
55. 0. 0	.38	3240.00
65.51. 0	.01	3891.00

PAYSON CITY LANDFILL

SUN 01-21-1996 11:54:53.62

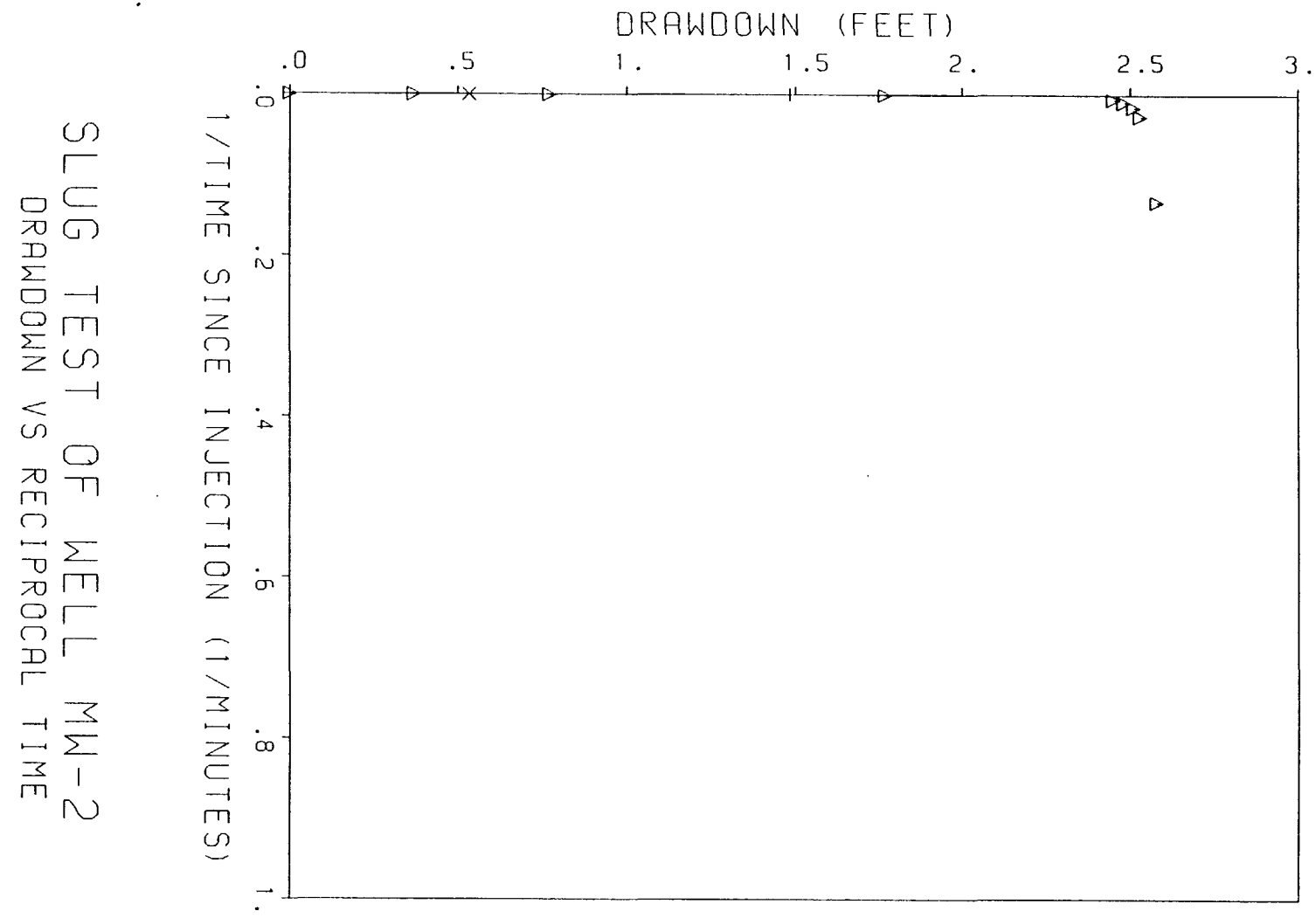


SLUG TEST OF WELL MW-2

HEAD RATIO VS LOG TIME

PAYSON CITY LANDFILL

SUN 01-21-1996 11:55:28.66



SLUG TEST OF WELL MW-2

DRAWDOWN VS RECIPROCAL TIME

WELL #	PERMEABILITY METHOD 1	PERMEABILITY METHOD 2	STORAGE COEF METHOD 2	PERMEABILITY METHOD 3	PERMEABILI METHOD 4
MW-2	1.00E-07	7.36E-08	1.11E-06	2.71E-06	6.36E-08

* METHOD 1 IS HVORSLEV
METHOD 2 IS COOPER, BREDEHOEFT, AND PAPADOPULOS
METHOD 3 IS FERRIS AND KNOWLES
METHOD 4 IS BOUWER

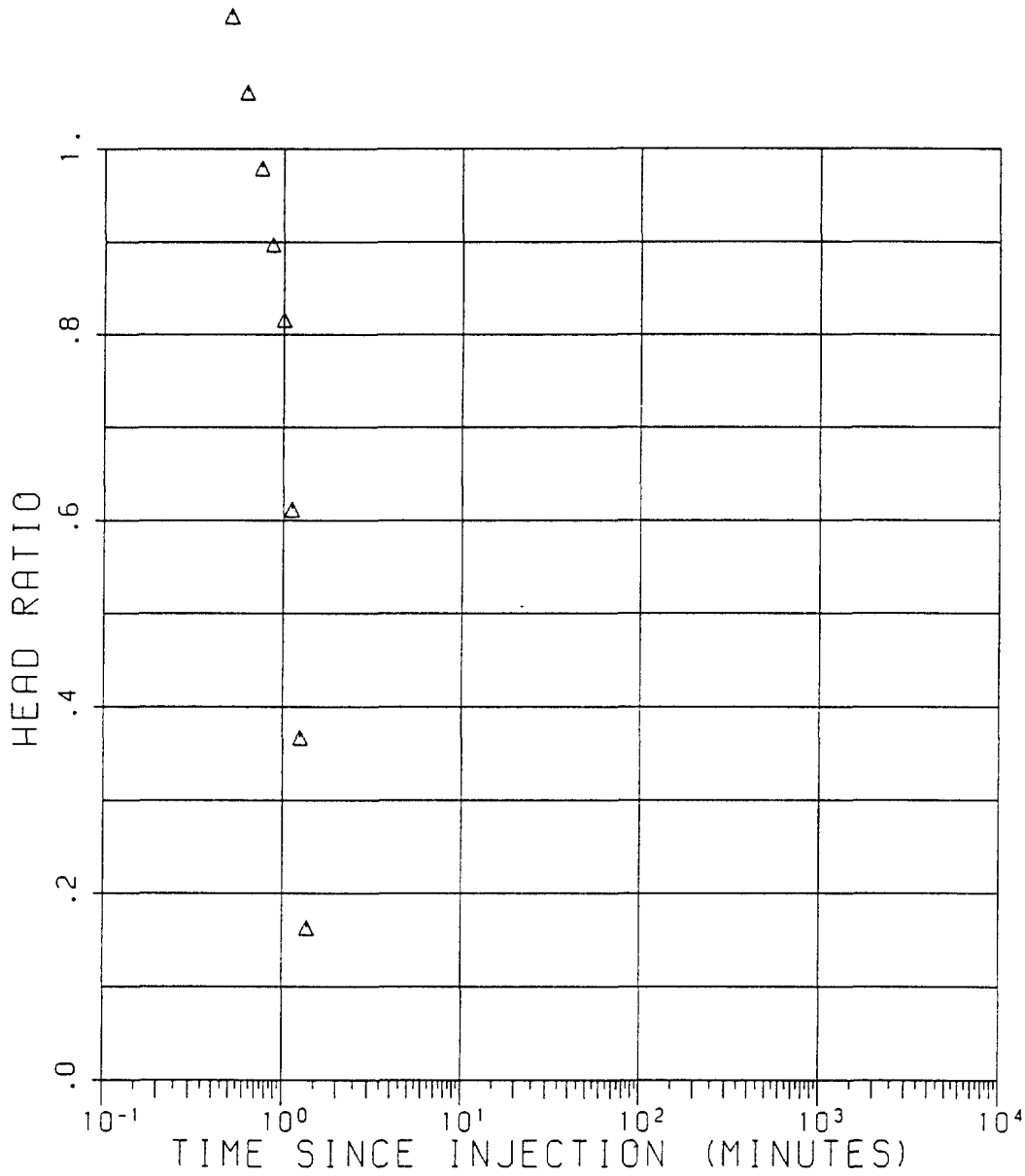
RAW DATA

WELL # MW-3

WELL DIAMETER= 6.00 INCHES
CASING DIAMETER= 2.00 INCHES
VOLUME OF WATER= .04 GALLONS
LENGTH OF AQUIFER TESTED= 33.00 FEET
VALUE OF H0= .25 FEET
STATIC WATER LEVEL= .01 FEET
LENGTH OF SCREEN= 60.00 FEET
WATER TABLE TO BOTTOM OF WELL= 33.00 FEET

SLUG TEST DATA:

TIME	WATER LEVEL (FEET)	TIME SINCE TEST BEGAN (MINUTES)
1. 0.30	.29	.50
1. 0.37	.27	.62
1. 0.45	.25	.75
1. 0.52	.23	.87
1. 1. 0	.21	1.00
1. 1. 7	.16	1.12
1. 1.15	.10	1.25
1. 1.22	.05	1.37
1. 1.30	.01	1.50



SLUG TEST OF WELL MW-3

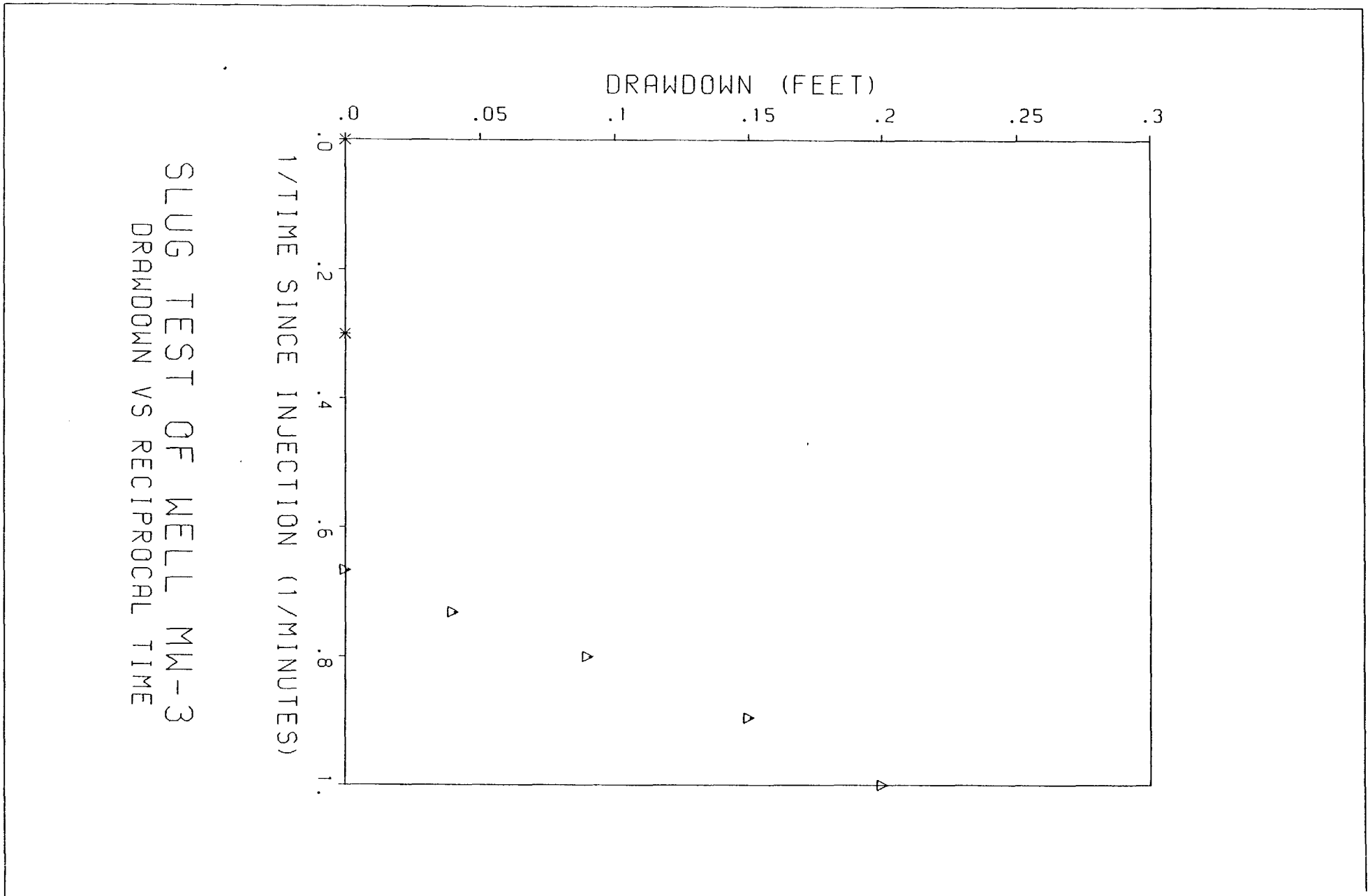
HEAD RATIO VS LOG TIME

A:PAYSON CITY LANDFILL

SUN 01-21-1996 12:12:16.49

A:PAYSON CITY LANDFILL

SUN 01-21-1996 12:12:49.77



WELL #	PERMEABILITY METHOD 1	PERMEABILITY METHOD 2	STORAGE COEF METHOD 2	PERMEABILITY METHOD 3	PERMEABILI METHOD 4
MW-3	2.18E-04	1.46E-04	1.11E-06	.00	4.05E-04

* METHOD 1 IS HVORSLEV
METHOD 2 IS COOPER, BREDEHOEFT, AND PAPADOPULOS
METHOD 3 IS FERRIS AND KNOWLES
METHOD 4 IS BOUWER

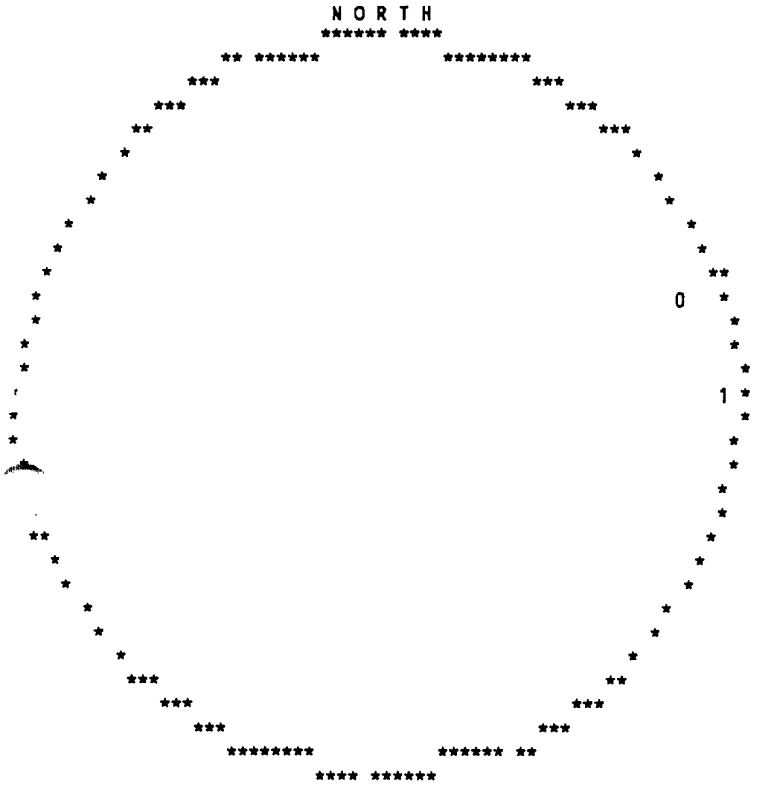
ATTACHMENT 2

WATER RIGHTS SEARCH RESULTS

UTAH DIVISION OF WATER RIGHTS
WATER RIGHT POINT OF DIVERSION PLOT CREATED MON, SEP 25, 1995, 4:01 PM
PLOT SHOWS LOCATION OF 3 POINTS OF DIVERSION

PLOT OF AN AREA WITH A RADIUS OF 2000 FEET FROM A POINT
S 200 FEET, E 850 FEET OF THE NW CORNER,
SECTION 14 TOWNSHIP 9S RANGE 1E SL BASE AND MERIDIAN

PLOT SCALE IS APPROXIMATELY 1 INCH = 1000 FEET



UTAH DIVISION OF WATER RIGHTS
NWPLAT POINT OF DIVERSION LOCATION PROGRAM

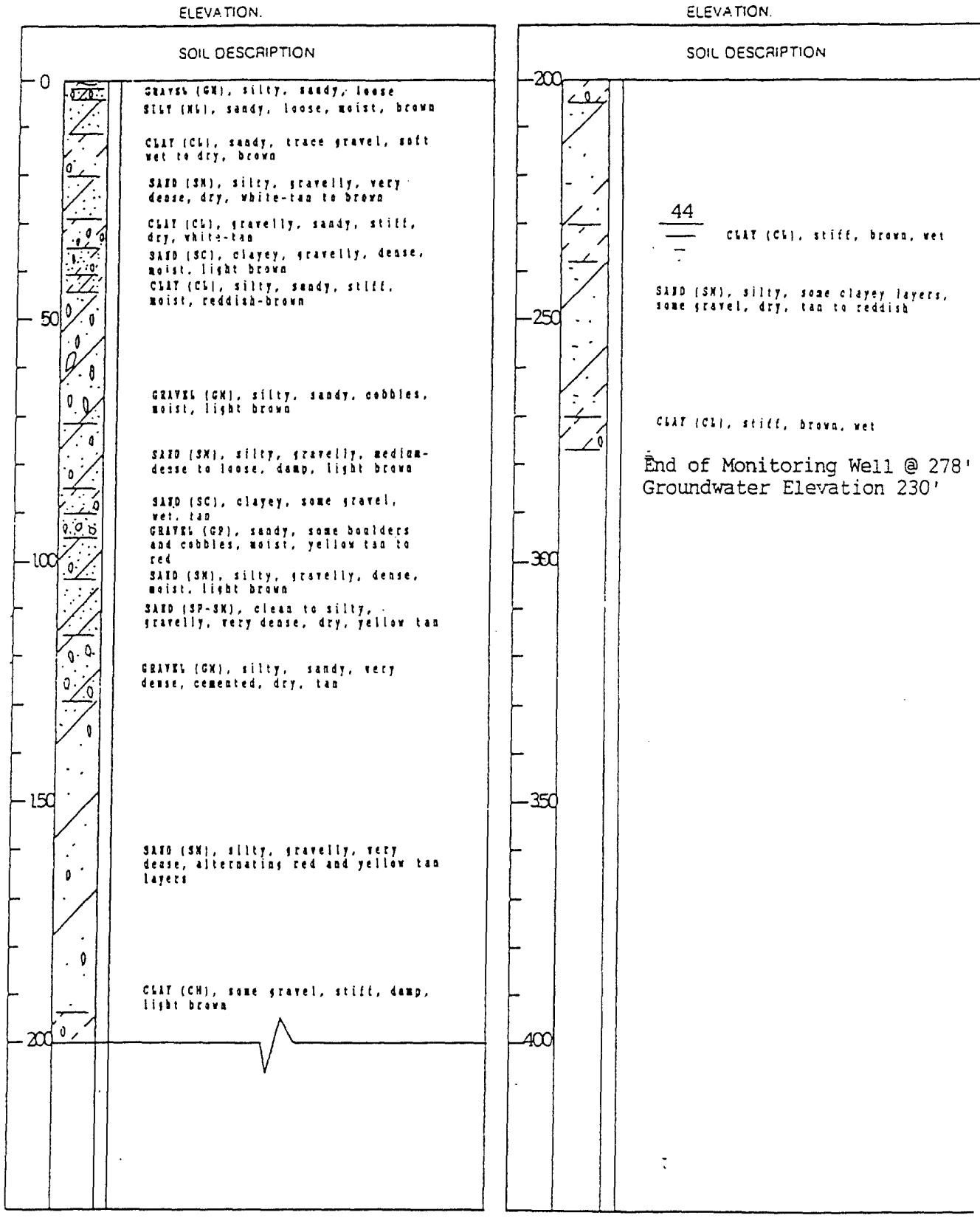
MAP CHAR	WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER	DEPTH	YEAR LOG	NORTH	EAST	POINT OF DIVERSION DESCRIPTION CNR SEC	TWN	RNG	B&M	U N	A P	P E	T E	S U	U G	P R	R E
0	51 3028	.1120	4.54	8	174	1972 Y	N 440	W 150	S4 11	9S	1E	SL		X				X		
	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING								PRIORITY DATE: 00/00/1928											
	Kester, Terry K.			RFD #1					Payson			UT 84651								
0	51 6481	.0000	1.76	8	174	1972 Y	N 440	W 150	S4 11	9S	1E	SL		X				X		
	WATER USE(S): STOCKWATERING								PRIORITY DATE: 00/00/1928											
	Kester, Terry K.			10336 South 6000 West					Payson			UT 84651								
1	a17377	.0150	.00	6	100 - 500		S 200	W 2550	NE 14	9S	1E	SL		X				X		
	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING								PRIORITY DATE: 05/07/1993											
	Rucker, Roy L. and Mary C.			P. O. Box 352					Payson			UT 84651								

ATTACHMENT 4

MONITOR WELL COMPLETION
AND
DRILL HOLE LOGS

ETE

MONITORING WELL NO. 1



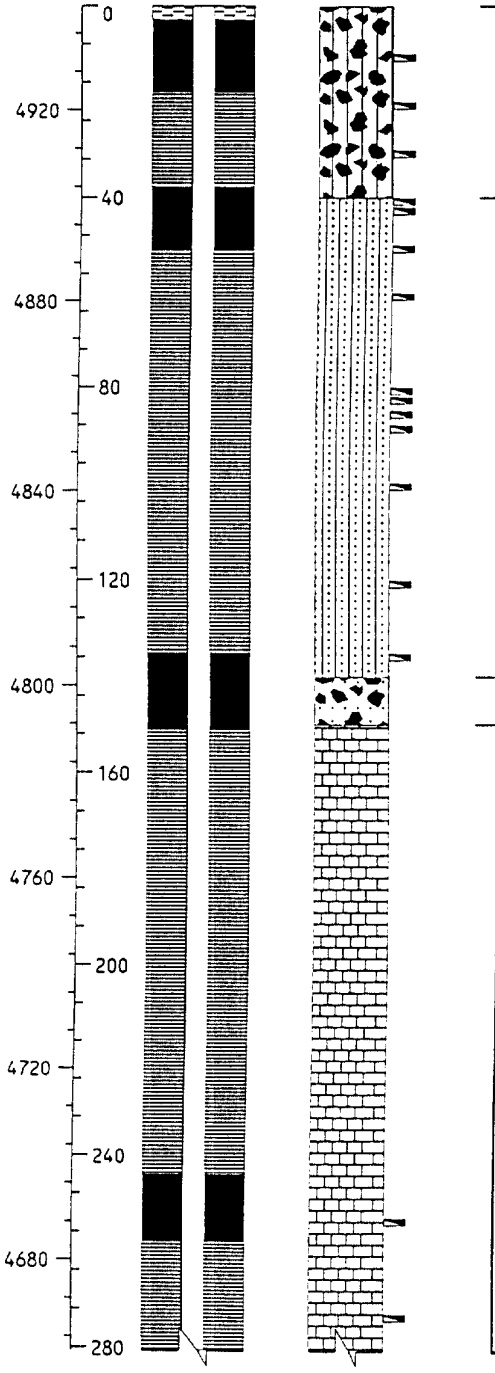
LOGS OF TEST HOLE

FIGURE 1

DRILL HOLE LOG
MONITOR WELL NO.: MW-2

PROJECT: Payson City Landfill
CLIENT/OWNER: Payson City Corp.
HOLE LOCATION: West of landfill
DRILLER: Layne Environmental
DRILL RIG: SCHRAMM 685
DEPTH TO WATER: 404.72' HOLE DIAMETER: 8"

PROJECT NO.: 2469-002
DATE: 2-12-96
TOC ELEV.: 4944.59
GS ELEV.: 4941.78
LOGGED BY: DCH
WELL NO.: MW-2



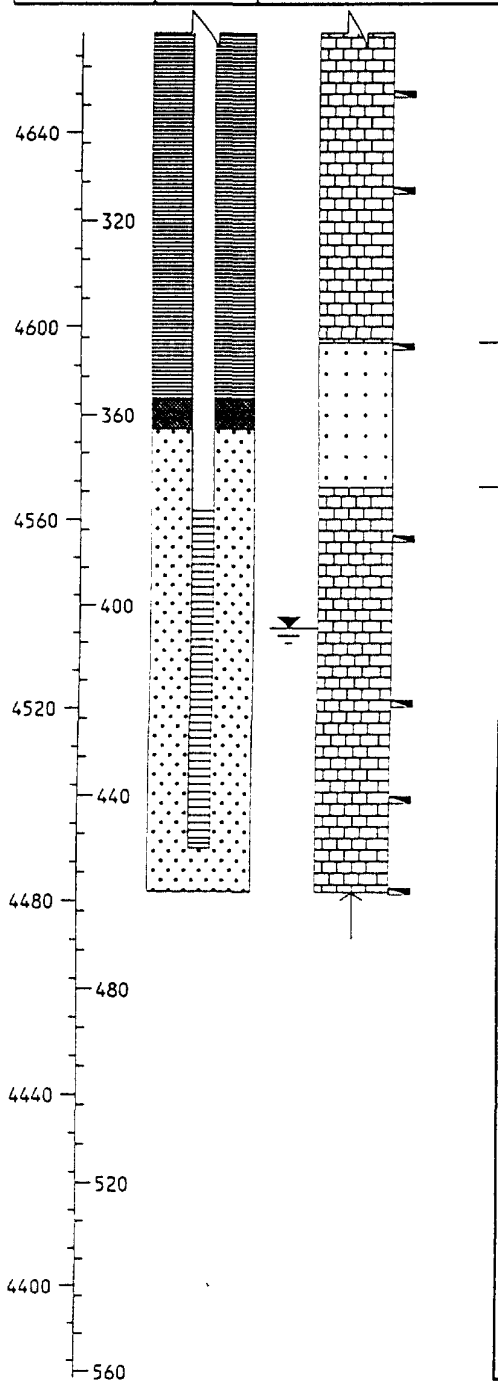
ELEVATION / DEPTH	WELL DETAILS	SOIL SYMBOLS, SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Description	Sample Number	Sample Depth (ft)	Recovery (in/in)
			GM	SILTY GRAVEL: Gray & brown, sandy fine to coarse, cobbles, slightly moist to dry.	B-1	10	
				...grades with occasional boulders.	B-2	20	
					B-3	30	
			SM	SILTY SAND: Gray, fine to coarse, gravely, dry.	B-4	40	
					B-5	42	
				...grades with occasional cobbles & boulders.	B-6	50	
					B-7	60	
				...grades with occasional reddish brown & yellowish brown lenses.	B-8	80	
					B-9	82	
					B-10	85	
					B-11	88	
					B-12	100	
					B-13	120	
					B-14	135	
			GP	SANDY GRAVEL: Gray, cobbles & boulders, dry.			
				LIMESTONE: Gray with occasional reddish brown lenses, dry.			
					B-15	253	
					B-16	273	

Figure No. 1

DRILL HOLE LOG
MONITOR WELL NO.: MW-2

PROJECT: Payson City Landfill
CLIENT/OWNER: Payson City Corp.
HOLE LOCATION: West of landfill
DRILLER: Layne Environmental
DRILL RIG: SCHRAMM 685
DEPTH TO WATER: 404.72' HOLE DIAMETER: 8"

PROJECT NO.: 2469-002
DATE: 2-12-96
TOC ELEV.: 4944.59
GS ELEV.: 4941.78
LOGGED BY: DCH
WELL NO.: MW-2



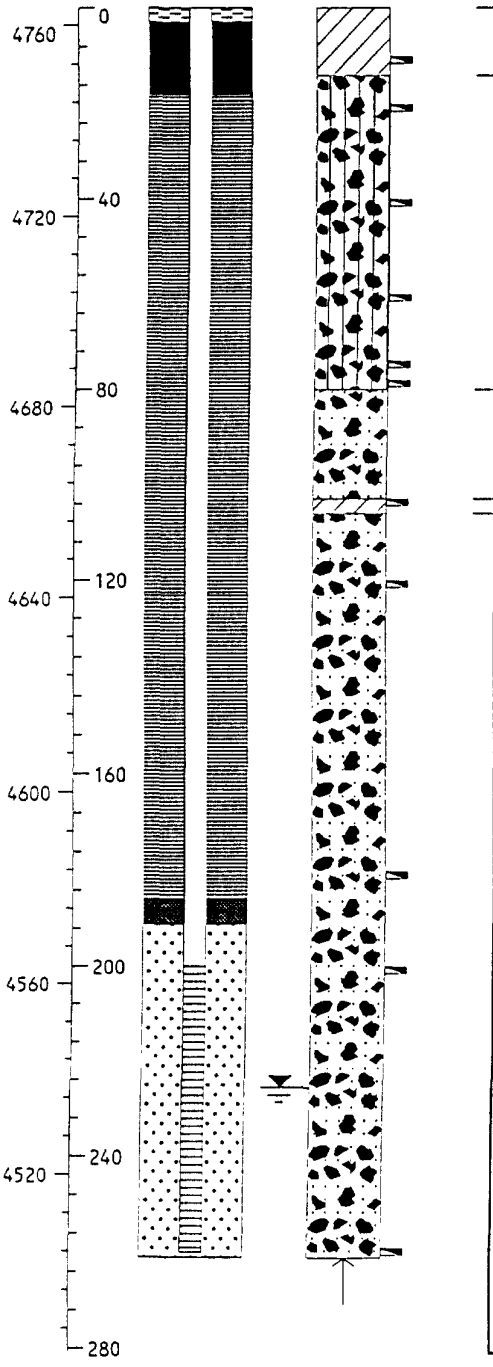
USCS	Description	Sample Number	Sample Depth (ft)	Recovery (in/in)
		B-17	293	
		B-18	313	
	SANDSTONE: Reddish brown, fine to coarse, dry to slightly damp.	B-19	345	
	LIMESTONE: Gray, dry to wet.	B-20	385	
	...grades wet.	B-21	420	
		B-22	440	
		B-23	460	

Figure No. 2

DRILL HOLE LOG
MONITOR WELL NO.: MW-3

PROJECT: Payson City Landfill
CLIENT/OWNER: Payson City Corp.
HOLE LOCATION: East of landfill
DRILLER: Layne Environmental
DRILL RIG: SCHRAMM 685
DEPTH TO WATER: 225.50' HOLE DIAMETER: 8"

PROJECT NO.: 2469-002
DATE: 2-20-96
TOC ELEV.: 4765.37
GS ELEV.: 4763.66
LOGGED BY: DCH
WELL NO.: MW-3



USCS	Description	Sample Number	Sample Depth (ft)	Recovery (in/in)
CL	SILTY CLAY: Dark brown to brown, moist to dry.	B-1	10	
GM	SILTY GRAVEL: Gray and brown, dry.	B-2	20	
	...grades with occasional cobbles.	B-3	40	
		B-4	60	
		B-5	74	
		B-6	78	
GP	SANDY GRAVEL: Gray, fine to coarse, occasional cobbles & boulders, dry.	B-7	103	
CL	SILTY CLAY: Reddish brown, sandy, slightly moist.			
GP	SANDY GRAVEL: Gray with occasional reddish brown lenses, fine to coarse, occasional cobbles & boulders, dry. ...grades with a high concentration of boulders & cobbles; boulders & cobbles may be cemented.	B-8	120	
	...grades with occasional 2 to 4 foot reddish brown clay lenses.	B-9	180	
		B-10	200	
		B-11	260	

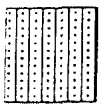
Figure No. 3

KEY TO SYMBOLS

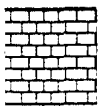
Symbol Description

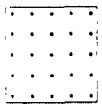
Strata symbols


Silty Gravel


Silty sand


Silty Gravel


Limestone


Sandstone


Silty Clay

Misc. Symbols


Boring continues


Water table

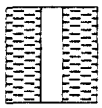

Drill hole completion depth

Symbol Description

Soil Samplers


Bulk/Grab sample

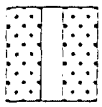
Monitor Well Completion Details

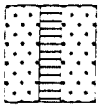

Protective well cover set in concrete

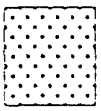

Bentonite-cement slurry blank 2" O.D. PVC pipe


Bentonite hole plug blank 2" O.D. PVC pipe


Bentonite pellets blank 2" O.D. PVC pipe


Silica sand blank 2" O.D. PVC pipe


Silica sand 20 slot 2" O.D. PVC pipe.


Silica sand no PVC pipe

Notes:

1. Monitor wells MW-2 and MW-3 were drilled and installed on February 12 through 27, 1996. The holes were drilled with a truck mounted drill rig. The drilling method was the "casing under reaming advanced system" utilizing 8-inch O.D. drilling pipe.

2. Free water was encountered at the time of drilling. Water levels shown on the drill hole logs were measured on September 10, 1996.

3. Soil samples for soil identification were obtained from the drill cuttings.

4. These logs are subject to the limitations, conclusions, and recommendations in this report.

ATTACHMENT 5

ANALYTICAL RESULTS

REQUIRED ANALYTICAL PARAMETERS

GROUNDWATER SAMPLING CONSTITUENTS
PAYSON LANDFILL
(in mg/L except pH)

CONSTITUENT	Detection Limit	Groundwater Standard	Standard Source
HEAVY METALS			
Antimony	0.005	0.01	Primary DW standards (MCL) - Correspondance with DSHW
Arsenic	0.005	0.05	R317-6-2 Groundwater Quality Standards
Barium	0.002	2	R317-6-2 Groundwater Quality Standards
Beryllium	0.001	0.001	Primary DW standards (MCL) - Correspondance with DSHW
Cadmium	0.004	0.005	R317-6-2 Groundwater Quality Standards
Chromium	0.01	0.1	R317-6-2 Groundwater Quality Standards
Cobalt	0.01	N/A	
Copper	0.01	1.3	R317-6-2 Groundwater Quality Standards
Lead	0.005	0.015	R317-6-2 Groundwater Quality Standards
Mercury	0.0002	0.002	R317-6-2 Groundwater Quality Standards
Nickel	0.01	0.1	Primary DW standards (MCL) - Correspondance with DSHW
Selenium	0.005	0.05	R317-6-2 Groundwater Quality Standards
Silver	0.01	0.1	R317-6-2 Groundwater Quality Standards
Thallium	0.001	0.002	Primary DW standards (MCL) - Correspondance with DSHW
Vanadium	0.01	0.02	HA - Correspondance with DSHW
Zinc	0.01	5	R317-6-2 Groundwater Quality Standards
INORGANIC CONSTITUENTS			
Ammonia (as N)	0.05	N/A	
Bicarbonate (as CaCO3)	10	N/A	
Carbonate (as CaCO3)	10	N/A	
Calcium	0.05	N/A	
Chloride	0.5	250	R309-103-3 Secondary DW Standards
Iron	0.01	0.3	R309-103-3 Secondary DW Standards
Magnesium	0.05	N/A	
Manganese	0.005	0.05	R309-103-3 Secondary DW Standards
Nitrate (as N)	0.01	10	R317-6-2 Groundwater Quality Standards
pH	0.1	6.5 - 8.5	R317-6-2 Groundwater Quality Standards
Potassium	0.1	N/A	
Sodium	0.1	N/A	
Sulfate	5.0	250	R309-103-3 Secondary DW Standards
TDS	10.0	2,000	R309-103-2 Primary DW Standards
TOC	10.0	N/A	

GROUNDWATER SAMPLING CONSTITUENTS
PAYSON LANDFILL
(in mg/L)

CONSTITUENT	Alternate Name	Detection Limit	Groundwater Standard	Standard Source
Acetone		0.010	N/A	
Acrylonitrile		0.005	0.007	cancer - Correspondance from DSHW
Benzene		0.002	0.005	R317-6-2 Groundwater Quality Standards
Bromochloromethane		0.002	0.09	HA - Correspondance from DSHW
Bromodichloromethane		0.002	0.1	MCL - Correspondance from DSHW
Bromoform	Tribromomethane	0.002	0.1	MCL - Correspondance from DSHW
Carbon Disulfide		0.002	N/A	
Carbon Tetrachloride		0.002	0.005	R317-6-2 Groundwater Quality Standards
Chlorobenzene		0.002	0.3	HA - Correspondance from DSHW
Chloroethane	Ethyl Chloride	0.005	N/A	
Chloroform	Trichloromethane	0.002	0.1	MCL - Correspondance from DSHW
Dibromochloromethane		0.002	0.1	MCL - Correspondance from DSHW
1,2-Dibromo-3-chloropropane	DBCP	0.001	0.002	MCL - Correspondance from DSHW
1,2-Dibromoethane	EDB	0.00005	0.00005	MCL - Correspondance from DSHW
1,2-Dichlorobenzene	ortho	0.002	0.6	R317-6-2 Groundwater Quality Standards
1,4-Dichlorobenzene	para	0.002	0.075	R317-6-2 Groundwater Quality Standards
trans-1,4-Dichloro-2-butene		0.010	N/A	
1,1-Dichloroethane		0.002	N/A	
1,2-Dichloroethane		0.002	0.005	R317-6-2 Groundwater Quality Standards
1,1-Dichloroethylene		0.002	0.007	R317-6-2 Groundwater Quality Standards
cis-1,2-Dichloroethylene		0.002	0.07	R317-6-2 Groundwater Quality Standards
trans-1,2-Dichloroethylene		0.002	0.1	R317-6-2 Groundwater Quality Standards
1,2-Dichloropropane		0.002	0.005	R317-6-2 Groundwater Quality Standards
cis-1,3-Dichloropropene		0.002	0.02	cancer - Correspondance from DSHW
trans-1,3-Dichloropropene		0.002	N/A	
Ethylbenzene		0.002	0.7	R317-6-2 Groundwater Quality Standards
2-Hexanone	Methyl butyl ketone	0.005	N/A	
Methyl bromide	Bromomethane	0.005	0.01	HA - Correspondance from DSHW
Methyl chloride	Chloromethane	0.002	0.003	HA - Correspondance from DSHW
Methylene bromide	Dibromomethane	0.002	N/A	
Methylene chloride	Dichloromethane	0.002	0.005	MCL - Correspondance from DSHW
Methyl ethyl ketone	2-Butanone	0.010	0.2	MCL - Correspondance from DSHW
Methyl Iodide	Iodomethane	0.005	N/A	
4-Methyl-2-pentanone	MIBK	0.005	N/A	
Styrene		0.002	0.1	R317-6-2 Groundwater Quality Standards
1,1,1,2-Tetrachloroethane		0.002	0.07	MCL - Correspondance from DSHW
1,1,2,2-Tetrachloroethane		0.002	N/A	
Tetrachloroethylene	PCE	0.002	0.005	R317-6-2 Groundwater Quality Standards
Toluene		0.002	1	R317-6-2 Groundwater Quality Standards
1,1,1-Trichloroethane	Methyl chloroform	0.002	0.2	R317-6-2 Groundwater Quality Standards
1,1,2-Trichloroethane		0.002	0.005	MCL - Correspondance from DSHW
Trichloroethylene	TCE	0.002	0.005	R317-6-2 Groundwater Quality Standards
Trichlorofluoromethane	Freon II	0.002	0.2	HA - Correspondance from DSHW
1,2,3-Trichloropropane		0.002	0.04	HA - Correspondance from DSHW
Vinyl acetate		0.005	N/A	
Vinyl chloride		0.002	0.002	R317-6-2 Groundwater Quality Standards
Xylenes		0.002	10	R317-6-2 Groundwater Quality Standards

GROUNDWATER SAMPLING FORMS
SEPTEMBER 10 & 11, 1996

WATER SAMPLING

JOB No. 2469-003

OWNER: PAYSON CITY LANDFILL WELL I.D./SAMPLING LOCATION: MW-1

Well depth: 278' Depth to water: 221.23 Measuring technique: HERON 500' WL TAPE

Well evacuation procedure/equipment: GeoGaurd 500' Controller / 5600 Bladder Pump (Dedica

MICRO PURGED

Casing volumes removed (gallons):							
pH meter reading	5.40	5.80	6.22	6.36	6.76	6.31	6.42
Conductivity meter reading	110	90	99	90	90	90	90
Temperature	17.0	16.0	16.0	15.0	14.0	14.0	14.0

Well yield (high/low) purge volume: 6 gallons Time purged: 14:00

Sample withdrawal procedure/equipment: GeoGaurd 500' Controller / 5600 Bladder pump (Dedicat

Sample collection on: Date: 9·10·96 Time: 14:35

Field pH measurements: 1. 2. 3. 4.

pH meter used: Beckman II Calibration standard: 4 - 7 BUFFER

Field conductivity meter reading: 1. 7100 / 900 2. 950 / 900 3. 900 / 900 4. 900 (X10, X100, X1000)

Meter temperature reading: 1. 17.0 / 16.0 2. 16.0 / 16.0 3. 14.0 / 14.0 4. 14.0

25 C correction factor: 1. 1.189 / 1.218 2. 1.218 / 1.247 3. 1.277 / 1.277 4. 1.271

Field Specific Conductivity: 1. 1307.9 / 1096.2 2. 1205.2 / 1122.3 3. 1149.3 / 1149.3 4. 1149.3

SC meter used: YSI 33 Calibration standard: Red line

Field thermometer temp. reading: 1. 17.0 / 16.0 2. 16.0 / 15.0 3. 14.0 / 14.0 4. 14.0

Field Sulfate measurement:

Weather conditions: Warm Air temp.: 83°

Visual description: Sunny, clear

Comments:

Sampled by: Kent Malmquist

SAMPLE PRESERVATION AND ANALYSIS

Bottle No.	Container	Preservation	Parameter for Analysis

Internal temperature of shipping container:

Maximum and minimum temperatures recorded during shipping:

Receiving Laboratory: ANVL / *(MT STATES FOR EDB's Received @ 9:55)(9-12-96)

Date Received: 9-10-96 Time: 10:25

Note any damaged or missing samples

Accepted by

Internal temperature of shipping container upon opening at laboratory:

WATER SAMPLING

JOB No. 2469-003
OWNER: PAYSON CITY LANDFILL WELL I.D./SAMPLING LOCATION: MW-2
Well depth: 451' Depth to water: 404.72 Measuring technique: HERON 500' WL TAPE
Well evacuation procedure/equipment: Geobaird 500I Controller / 5600 BLADDER Pump (Dedicated)
MICRO-PURGED

Casing volumes removed (gallons):							
pH meter reading	7.60	7.30	7.62	7.28	7.34	7.32	7.21
Conductivity meter reading	250	240	230	230	230	230	230
Temperature	16.0	16.0	15.0	15.0	15.0	15.0	15.0

Well yield (high/low) purge volume: 4 GALLONS Time purged: 15:35
Sample withdrawal procedure/equipment: Geo Baird 500I Controller / 5600 BLADDER Pump (Dedicated)
Sample collection on: Date: 9.11.96 Time: 16:00

Field pH measurements: 1. 7.60/7.30 2. 7.62/7.28 3. 7.34/7.32 4. 7.21
pH meter used: Beckman II Calibration standard: 4-7 Buffer

Field conductivity meter reading:	1. 250	240	2. 230	230	3. 230	230	4. 230	(X1)	(X10,X100,X1000)
Meter temperature reading:	1. 16.0	16.0	2. 15.0	15.0	3. 15.0	15.0	4. 15.0		
25 C correction factor:	1. 1.218	1.218	2. 1.247	1.247	3. 1.247	1.247	4. 1.247		
Field Specific Conductivity:	1. 304.5	292.32	2. 286.81	286.81	3. 286.81	286.81	4. 286.81		

SC meter used: YSI 33 Calibration standard: Red line

Field thermometer temp. reading: 1. 2. 3. 4.

Field Sulfate measurement:

Weather conditions: Warm Air temp.: 80°
Visual description: cloudy
Comments:
Sampled by: K. Malmquist

SAMPLE PRESERVATION AND ANALYSIS

Bottle No.	Container	Preservation	Parameter for Analysis

Internal temperature of shipping container:
Maximum and minimum temperatures recorded during shipping:

Receiving Laboratory: AWAL & (MT STATES for EOB) (Received @ 9.55 on 9-12-96)
Date Received: 9.12.96 Time: 9.25
Note any damaged or missing samples

Accepted by

Internal temperature of shipping container upon opening at laboratory:

WATER SAMPLING

JOB No. 2469-003
OWNER: PAYSON CITY LANDFILL — WELL I.D./SAMPLING LOCATION: MW-3
Well depth: 260 — Depth to water: 225.50 — Measuring technique: HERON 500' WL TAPE
Well evacuation procedure/equipment: GeoGaurd 500l controller/5600 Bladder Pump (Dedicated) MICRO-PURGED

Casing volumes removed (gallons):							
pH meter reading	7.05	6.82	6.63	6.69	6.93	6.83	
Conductivity meter reading	90	90	85	85	85	85	
Temperature	18.0	16.0	16.0	16.0	16.0	16.0	

Well yield (high/low) — purge volume: 4 GALLON — Time purged: 15:05
Sample withdrawal procedure/equipment: Geo Gaurd 500l controller/5-600 BLADDER PUMP (Dedicated)
Sample collection on: Date: 9.10.96 — Time: 15:30

Field pH measurements: 1. 7.05/6.82 2. 6.63/6.69 3. 6.93 4. 6.83
pH meter used: Beckman II — Calibration standard: 4-7 BUFFER

Field conductivity meter reading: 1. 900/900 2. 850/850 3. 850 4. 850 ((X10),X100,X1000)
Meter temperature reading: 1. 18.0/16.0 2. 16.0/16.0 3. 16.0 4. 16.0
25 C correction factor: 1. 1.163 | 1.218 2. | 1.218 3. 1.218 4. 1.218
Field Specific Conductivity: 1. 104.7 | 109.2 2. | 1035.3 3. 1035.3 4. 1035.3
SC meter used: YSI 33 — Calibration standard: Red line

Field thermometer temp. reading: 1. 2. 3. 4.

Field Sulfate measurement:

Weather conditions: Warm — Air temp.: 83°
Visual description: sunny - clear
Comments:
Sampled by: Kent Malmqvist

SAMPLE PRESERVATION AND ANALYSIS

Bottle No.	Container	Preservation	Parameter for Analysis

Internal temperature of shipping container:
Maximum and minimum temperatures recorded during shipping:

Receiving Laboratory: AWAL (MT STATES (EDBs)) Received 9-12-96 @ 9:55
Date Received: 9.10.96 — Time: 10.25
Note any damaged or missing samples

Accepted by

Internal temperature of shipping container upon opening at laboratory:

GROUNDWATER SAMPLING RESULTS
SEPTEMBER 10 & 11, 1996

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119-01
Field Sample ID.: Payson Landfill/MW-1

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood
Set Description: Two Water Samples

Analytical Results

TOTAL METALS	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Antimony	204.2	0.005	<0.005
Arsenic	206.2	0.005	**0.012**
Barium	200.7	0.002	**0.090**
Beryllium	200.7	0.001	<0.001
Calcium	200.7	0.05	**120.**
Cadmium	200.7	0.004	<0.004
Chromium	200.7	0.01	**0.01**
Cobalt	200.7	0.01	<0.01
Copper	200.7	0.004	**0.012**
Iron	200.7	0.01	**2.7**
Lead	239.2	0.005	**0.013**
Magnesium	200.7	0.05	**48.**
Manganese	200.7	0.005	**0.053**
Mercury	245.2	0.001	<0.001
Nickel	200.7	0.005	**0.019**
Potassium	200.7	0.1	**10.**
Selenium	270.2	0.005	<0.005
Silver	200.7	0.01	<0.01
Sodium	200.7	0.1	**84.**
Thallium	279.2	0.001	<0.001
Vanadium	200.7	0.005	**0.015**
Zinc	200.7	0.005	**0.027**

Released by: _____
Laboratory Supervisor

Report Date 9/25/96

INORGANIC ANALYSIS REPORT

AMERICAN
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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119-01
Field Sample ID.: Payson Landfill/MW-1

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood
Set Description: Two Water Samples

Analytical Results

DISSOLVED METALS	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Antimony	204.2	0.005	<0.005
Arsenic	206.2	0.005	<0.005
Barium	200.7	0.002	**0.090**
Beryllium	200.7	0.001	<0.001
Cadmium	200.7	0.004	<0.004
Chromium	200.7	0.01	<0.01
Cobalt	200.7	0.01	<0.01
Copper	200.7	0.004	<0.004
Iron	200.7	0.01	<0.01
Lead	239.2	0.005	**0.007**
Manganese	200.7	0.005	<0.005
Mercury	245.2	0.0002	<0.0002
Nickel	200.7	0.005	**0.007**
Selenium	270.2	0.005	<0.005
Silver	200.7	0.01	<0.01
Thallium	279.2	0.001	<0.001
Vanadium	200.7	0.005	**0.008**
Zinc	200.7	0.005	**0.027**

Released by: _____
Laboratory Supervisor

Report Date 9/25/96

INORGANIC ANALYSIS REPORT

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Salt Lake City, Utah
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(801) 263-8686
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Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119-01
Field Sample ID.: Payson Landfill/MW-1

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood
Set Description: Two Water Samples

Analytical Results

	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Ammonia (as N)	350.1	0.05	<0.05
Bicarbonate (as $CaCO_3$)	310.1	10.	**420.**
Carbonate (as $CaCO_3$)	310.1	10.	<10.
Chloride	4500 CLB	0.5	**84.**
Nitrate (as N)	353.2	0.01	**3.2**
pH	150.1	0.1	**7.7**
Sulfate	375.4	5.0	**81.**
TDS	160.1	1.0	**720.**
TOC	415.2	1.0	<1.0

Released by: _____
Laboratory Supervisor

Report Date 9/24/96

ORGANIC ANALYSIS REPORT

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Salt Lake City, Utah
84115

(801) 263-8686
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Client: Bingham Environmental
Date Samled: Septemer 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Analysis Requested:	Method Ref. Number:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260 Purge & Trap GC/MS	September 17, 1996

Lab Sample ID.:	Field Sample ID.:
27119-01	Payson Landfill/MW-1

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

AMERICAN WEST ANALYTICAL LABORATORIES

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Lab Sample ID.: 27119-01

Field Sample ID.: Payson Landfill/MW-1

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
trans-1,2-Dichloroethene	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
cis-1,3-Dichloropropene	2.0	< 2.0
trans-1,3-Dichloropropene	2.0	<2.0
Ethylbenzene	2.0	< 2.0
2-Hexanone	5.0	< 5.0
Methylene chloride	2.0	< 2.0
4-Methyl-2-pentanone	5.0	< 5.0
Styrene	2.0	< 2.0
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
Vinyl acetate	5.0	< 5.0
Vinyl chloride	2.0	< 2.0
ortho-Xylene	2.0	< 2.0
meta and para-Xylene	2.0	< 2.0
Iodomethane	5.0	<5.0
trans 1,4-Dichloro-2-Butene	10.	<10.

<Value = None detected above the specified reporting limit, or a value that reflects a reasonable limit due to interferences.

Released by: Diane Folkman
Laboratory Supervisor

Report Date 10/2/96

Analytical Report

Mountain States Analytical
The Quality Solution

Bingham Environmental
5160 W Willey Post Wy
Salt Lake City, UT 84116

Attn: Mr. Kevin Cosper
Project: Payson City Landfill

Sample ID: MW-1
Matrix: Waste Water

MSAI Sample: 52722
MSAI Group: 13476
Date Reported: 09/24/96
Discard Date: 10/24/96
Date Submitted: 09/12/96
Date Sampled: 09/10/96
Collected by: KM
Purchase Order:
Project No.:

Test	Analysis	Results as Received	Units	Limit of Quantitation
1874	EDB/DBCP			
	Method: EPA 504			
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	0.050
	1,2-Dibromoethane (EDB)	ND	ug/l	0.050
3101	EDB-DBCP/123-TCP Extraction	Complete		
	Method: EPA 504			

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

Mark W. Bostrom
Project Manager

INORGANIC ANALYSIS REPORT

AMERICAN
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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127-01
Field Sample ID.: Payson City Landfill/MW-2

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward
Set Description: Three Water Samples

Analytical Results

TOTAL METALS	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Antimony	204.2	0.005	<0.005
Arsenic	206.2	0.005	**0.11**
Barium	200.7	0.002	**2.1**
Beryllium	200.7	0.001	**0.005**
Calcium	200.7	0.05	**30.**
Cadmium	200.7	0.004	**0.012**
Chromium	200.7	0.01	**0.25**
Cobalt	200.7	0.01	**0.10**
Copper	200.7	0.004	**0.14**
Iron	200.7	0.01	**79.**
Lead	239.2	0.005	**0.061**
Magnesium	200.7	0.05	**8.7**
Manganese	200.7	0.005	**4.7**
Mercury	245.2	0.0002	**0.0005**
Nickel	200.7	0.005	**0.27**
Potassium	200.7	0.1	**17.**
Selenium	270.2	0.005	<0.005
Silver	200.7	0.005	**0.02**
Sodium	200.7	0.1	**31.**
Thallium	279.2	0.001	<0.001
Vanadium	200.7	0.005	**0.16**
Zinc	200.7	0.005	**0.70**

Released by: _____
Laboratory Supervisor

Report Date 9/30/96

INORGANIC ANALYSIS REPORT

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127-01
Field Sample ID.: Payson City Landfill/MW-2

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward
Set Description: Three Water Samples

Analytical Results

DISSOLVED METALS	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Antimony	204.2	0.005	<0.005
Arsenic	206.2	0.005	**0.005**
Barium	200.7	0.002	**0.49**
Beryllium	200.7	0.001	<0.001
Cadmium	200.7	0.004	<0.004
Chromium	200.7	0.01	<0.01
Cobalt	200.7	0.01	<0.01
Copper	200.7	0.004	<0.004
Iron	200.7	0.01	**0.04**
Lead	239.2	0.005	**0.006**
Manganese	6010	0.005	**0.033**
Mercury	7470	0.0002	<0.0002
Nickel	6010	0.005	**0.007**
Selenium	270.2	0.005	<0.005
Silver	200.7	0.005	<0.005
Thallium	279.2	0.001	<0.001
Vanadium	200.7	0.005	<0.005
Zinc	200.7	0.005	<0.005

Released by: _____
Laboratory Supervisor

Report Date 9/30/96

INORGANIC ANALYSIS REPORT

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463 West 3600 South
Salt Lake City, Utah
84115

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Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127-01
Field Sample ID.: Payson City Landfill/MW-2

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward
Set Description: Three Water Samples

Analytical Results

	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Ammonia (as N)	350.1	0.05	<0.05
Bicarbonate (as $CaCO_3$)	310.1	10.	**1,000.**
Carbonate (as $CaCO_3$)	310.1	10.	<10.
Chloride	4500 CLB	0.5	**51.**
Nitrate (as N)	353.2	0.01	<0.01
pH	150.1	0.1	**8.2**
Sulfate	375.4	5.0	<5.0
TDS	160.1	1.0	**230.**
TOC	415.2	1.0	**2.0**

Released by: _____
Laboratory Supervisor

Report Date 9/27/96 1 of 1

ORGANIC ANALYSIS REPORT

AMERICAN
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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127
Set Description: Three Water Samples

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward

Analysis Requested:
Volatile Organics

Method Ref. Number:
EPA SW-846 #8260
Purge & Trap GC/MS

Date Analyzed:
September 17, 1996

Lab Sample ID.:
27127-01

Field Sample ID.:
Payson City Landfill/MW-2

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

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Lab Sample ID.:
27127-01

Field Sample ID.:
Payson City Landfill/MW-2

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
trans-1,2-Dichloroethene	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
cis-1,3-Dichloropropene	2.0	< 2.0
trans-1,3-Dichloropropene	2.0	<2.0
Ethylbenzene	2.0	< 2.0
2-Hexanone	5.0	< 5.0
Methylene chloride	2.0	**76. ***
4-Methyl-2-pentanone	5.0	< 5.0
Styrene	2.0	< 2.0
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
Vinyl acetate	5.0	< 5.0
Vinyl chloride	2.0	< 2.0
ortho-Xylene	2.0	< 2.0
meta and para-Xylene	2.0	< 2.0
Iodomethane	5.0	<5.0
trans 1,4-Dichloro-2-Butene	10.	<10.

<Value = None detected above the specified reporting limit, or a value that reflects a reasonable limit due to interferences.

* The sample was analyzed twice to confirm detection.

Released by: Diane Baker
Laboratory Supervisor

Report Date 10/1/96

Analytical Report

Mountain States Analytical
The Quality Solution

Bingham Environmental
5160 W Willey Post Wy
Salt Lake City, UT 84116

Attn: Mr. Kevin Cosper
Project: Payson City Landfill

MSAI Sample: 52724
MSAI Group: 13476
Date Reported: 09/24/96
Discard Date: 10/24/96
Date Submitted: 09/12/96
Date Sampled: 09/11/96
Collected by: KM
Purchase Order:
Project No.:

Sample ID: MW-2
Matrix: Waste Water

Test	Analysis	Results as Received	Units	Limit of Quantitation
1874	EDB/DBCP			
	Method: EPA 504			
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	0.050
	1,2-Dibromoethane (EDB)	ND	ug/l	0.050
3101	EDB-DBCP/123-TCP Extraction	Complete	ug/l	
	Method: EPA 504			

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

Mark W. Bostrom
Project Manager

INORGANIC ANALYSIS REPORT

AMERICAN
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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119-02
Field Sample ID.: Payson Landfill/MW-3

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood
Set Description: Two Water Samples

Analytical Results

TOTAL METALS	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Antimony	204.2	0.005	<0.005
Arsenic	206.2	0.005	<0.005
Barium	200.7	0.002	**0.12**
Beryllium	200.7	0.001	<0.001
Calcium	200.7	0.05	**110.**
Cadmium	200.7	0.004	<0.004
Chromium	200.7	0.01	<0.01
Cobalt	200.7	0.01	<0.01
Copper	200.7	0.004	<0.004
Iron	200.7	0.01	**2.1**
Lead	239.2	0.005	**0.011**
Magnesium	200.7	0.05	**37.**
Manganese	200.7	0.005	**0.11**
Mercury	245.2	0.001	<0.001
Nickel	200.7	0.005	**0.008**
Potassium	200.7	0.1	**11.**
Selenium	270.2	0.005	<0.005
Silver	200.7	0.01	<0.01
Sodium	200.7	0.1	**86.**
Thallium	279.2	0.001	<0.001
Vanadium	200.7	0.005	<0.005
Zinc	200.7	0.005	<0.005

Released by: _____
Laboratory Supervisor

Report Date 9/25/96

INORGANIC ANALYSIS REPORT

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119-02
Field Sample ID.: Payson Landfill/MW-3

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood
Set Description: Two Water Samples

Analytical Results

DISSOLVED METALS	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Antimony	204.2	0.005	<0.005
Arsenic	206.2	0.005	<0.005
Barium	200.7	0.002	**0.11**
Beryllium	200.7	0.001	<0.001
Cadmium	200.7	0.004	<0.004
Chromium	200.7	0.01	<0.01
Cobalt	200.7	0.01	<0.01
Copper	200.7	0.004	<0.004
Iron	200.7	0.01	<0.01
Lead	239.2	0.005	<0.005
Manganese	200.7	0.005	**0.007**
Mercury	245.2	0.0002	<0.0002
Nickel	200.7	0.005	**0.008**
Selenium	270.2	0.005	<0.005
Silver	200.7	0.01	<0.01
Thallium	279.2	0.001	<0.001
Vanadium	200.7	0.005	<0.005
Zinc	200.7	0.005	<0.005

Released by: _____
Laboratory Supervisor

Report Date 9/25/96

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119-02
Field Sample ID.: Payson Landfill/MW-3

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood
Set Description: Two Water Samples

Analytical Results

	Method Used:	Reporting Limit: mg/L	Amount Detected: mg/L
Ammonia (as N)	350.1	0.05	<0.05
Bicarbonate (as $CaCO_3$)	310.1	10.	**350.**
Carbonate (as $CaCO_3$)	310.1	10.	<10.
Chloride	4500 CLB	0.5	**73.**
Nitrate (as N)	353.2	0.01	**3.0**
pH	150.1	0.1	**7.7**
Sulfate	375.4	5.0	**77.**
TDS	160.1	1.0	**410.**
TOC	415.2	1.0	<1.0

Released by: _____
Laboratory Supervisor

Report Date 9/24/96

ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Bingham Environmental
Date Samled: Septemer 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Analysis Requested:	Method Ref. Number:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260 Purge & Trap GC/MS	September 17, 1996

Lab Sample ID.:	Field Sample ID.:
27119-02	Payson Landfill/MW-3

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

Mountain States Analytical
The Quality Solution

Bingham Environmental
5160 W Willey Post Wy
Salt Lake City, UT 84116

Attn: Mr. Kevin Cosper
Project: Payson City Landfill

MSAI Sample: 52723
MSAI Group: 13476
Date Reported: 09/24/96
Discard Date: 10/24/96
Date Submitted: 09/12/96
Date Sampled: 09/10/96
Collected by: KM
Purchase Order:
Project No.:

Sample ID: MW-3
Matrix: Waste Water

Test	Analysis	Results as Received	Units	Limit of Quantitation
1874	EDB/DBCP			
	Method: EPA 504			
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	0.050
	1,2-Dibromoethane (EDB)	ND	ug/l	0.050
3101	EDB-DBCP/123-TCP Extraction	Complete	ug/l	
	Method: EPA 504			

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

Mark W. Bostrom
Project Manager

QUALITY ASSURANCE / QUALITY CONTROL DOCUMENTATION
SEPTEMBER 10 & 11, 1996

CLIENT Bingham Env.

ADDRESS 5160 Wiley Post Way
SLC UT

PHONE/FAX 532-2230

CONTACT Kevin Cosper

SITE PAYSON LANDFILL

SAMPLER'S SIGNATURE Kent Malmgren

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
Fax (801) 263-8687

CHAIN OF CUSTODY

LAB # 27119

SAMPLE ID	SAMPLE DATE/TIME	MATRIX	# OF CONTAINERS	BTX/TPH	VOLATILES	SEMIVOLATILES	D LIST METALS	ET PROFILE	TURN AROUND TIME
MW-1	9.9.96/14:35	Water	5						I
MW-3	9.9.96/15:50	Water	5						I

TURN AROUND TIMES
I = Priority I
II = Priority II
III = 5 Day Rush
S = Standard

COMMENTS
See attached Parameters table For Payson City landfill

RUN BOTH DISSOLVED AND TOTAL METALS ANALYSES

Ken B Cosper 9.12.96
KEVIN B. COSPER

BINGHAM ENVIRONMENTAL
5160 Wiley Post Way
Salt Lake City, Utah 84116

FAX 801-328-3381
TEL 801-532-2240

KEVIN B. COSPER, P.E.
Environmental Engineer

A Bingham Engineering Company

Quote # /P.O. # QC level II

Special Instructions: For metals ~~Drinking water~~ - method 200
Jerry note detection limit.

Relinquished By: Signature	Date/Time	Received By: Signature	Date/Time
Kent Malmgren	9.11.96 10:25		
PRINT NAME		PRINT NAME	
Relinquished By: Signature	Date/Time	Received By: Signature	Date/Time
PRINT NAME		PRINT NAME	
Dispatched By: Signature	Date/Time	Received for Laboratory By: Andrea L. Greenwood	Date/Time 9/11/96
PRINT NAME		PRINT NAME Andrea L. Greenwood	1025

ORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Bingham Environmental
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Received By: Andrea Greenwood

Analysis Requested: Volatile Organics

Method Ref. Number: EPA SW-846 #8260 Purge & Trap GC/MS

Date Analyzed: September 17, 1996

Lab Sample ID.:
27119-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

AMERICAN WEST ANALYTICAL LABORATORIES

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Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Lab Sample ID.:
27119-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
trans-1,2-Dichloroethene	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
cis-1,3-Dichloropropene	2.0	< 2.0
trans-1,3-Dichloropropene	2.0	<2.0
Ethylbenzene	2.0	< 2.0
2-Hexanone	5.0	< 5.0
Methylene chloride	2.0	< 2.0
4-Methyl-2-pentanone	5.0	< 5.0
Styrene	2.0	< 2.0
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
Vinyl acetate	5.0	< 5.0
Vinyl chloride	2.0	< 2.0
ortho-Xylene	2.0	< 2.0
meta and para-Xylene	2.0	< 2.0
Iodomethane	5.0	<5.0
trans 1,4-Dichloro-2-Butene	10.	<10.

<Value = None detected above the specified reporting limit, or a value that reflects a reasonable limit due to interferences.

Released by: Glenn Baker
Laboratory Supervisor

Report Date 10/2/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Quality Control Results - Total Metals

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27127-01	Silver	0.02	1.1	1.03	0.957	91.8	85.2	7.3
27127-01	Arsenic	0.11	1.0	0.745	0.765	63.5	65.5	-2.6
27127-01	Barium	2.1	1.1	3.14	3.16	94..5	96.4	-0.6
27127-01	Beryllium	0.005	1.1	1.07	10.9	96.8	98.6	-1.9
27127-01	Calcium	30.2	†	†	32.1	†	†	-6.1
27127-01	Cadmium	0.012	1.1	1.06	1.07	95.3	96.2	-0.9
27127-01	Cobalt	0.10	1.1	1.14	1.15	94.5	95.5	-0.9
27127-01	Chromium	0.25	1.1	1.30	1.31	95.5	96.4	-0.8
27127-01	Copper	0.14	1.1	1.21	1.23	97.3	99.1	-1.6
27127-01	Iron	79.	*	*	*	*	*	*
27119-01	Mercury	0.0	5.0	5.84	5.69	116.8	113.8	2.6
27127-01	Potassium	17.3	†	†	17.5	†	†	-1.1

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

* Recovery calculations are not required if the concentration added is less than 10% of the sample background concentration.

Released by: _____
Laboratory Supervisor

Report Date 9/27/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Quality Control Results - Total Metals

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27127-01	Magnesium	8.69	†	†	8.94	†	†	-2.8
27127-01	Manganese	4.7	1.1	5.74	5.77	94.5	97.3	-0.5
27127-01	Sodium	30.8	†	†	31.0	†	†	-0.6
27127-01	Nickel	0.27	1.1	1.29	1.31	92.7	94.5	-1.5
27127-01	Lead	0.061	1.0	0.956	0.919	89.5	85.8	3.9
27127-01	Antimony	0.0	0.067	0.0830	0.0829	123.9	123.7	0.1
27127-01	Selenium	0.0	1.0	0.607	0.605	60.7	60.5	0.3
27127-01	Thallium	0.0	0.067	0.0615	0.0633	91.8	94.5	-2.9
27127-01	Vanadium	0.16	1.1	1.20	1.22	94.5	96.4	-1.7
27127-01	Zinc	0.70	1.1	1.81	1.83	100.9	102.7	-1.1

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

* Recovery calculations are not required if the concentration added is less than 10% of the sample background concentration.

Released by: _____
Laboratory Supervisor

Report Date 9/27/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Quality Control Results - Dissolved Metals

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27127-01	Silver *	0.0	1.1	0.570	0.491	51.8	44.6	14.9
27127-01	Arsenic	0.005	1.0	0.871	0.911	86.6	90.6	-4.5
27127-01	Barium	0.49	1.1	1.65	1.64	105.5	104.5	0.6
27127-01	Beryllium	0.0	1.1	1.20	1.19	109.1	108.2	0.8
27127-01	Cadmium	0.0	1.1	1.20	1.20	109.1	109.1	0.0
27127-01	Cobalt	0.0	1.1	1.19	1.19	108.2	108.2	0.0
27127-01	Chromium	0.0	1.1	1.19	1.18	108.2	107.3	0.8
27127-01	Copper	0.0	1.1	1.16	1.16	105.5	105.5	0.0
27127-01	Iron	0.03	1.1	1.22	1.22	108.2	108.2	0.0
27127-01	Mercury	0.0	5.0	5.86	5.32	117.2	106.4	9.7

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

* Poor spike recovery due to matrix interference. The method is in control as indicated by the laboratory control sample. (LCS)

Released by: _____
Laboratory Supervisor

Report Date 9/27/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Quality Control Results - Dissolved Metals

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27127-01	Manganese	1,033.	1.1	1.21	1.21	107.0	107.0	0.0
27127-01	Sodium	30.8	†	†	31.0	†	†	-0.6
27127-01	Nickel	0.007	1.1	1.19	1.18	107.5	106.6	0.8
27127-01	Lead	0.006	1.0	0.875	0.909	86.9	90.3	-3.8
27127-01	Antimony	0.0	0.067	0.0752	0.0757	112.2	113.0	-0.7
27127-01	Selenium	0.0	1.0	0.806	0.847	80.6	84.7	-5.0
27127-01	Thallium	0.0	0.067	0.0675	0.0701	100.7	104.6	-3.8
27127-01	Vanadium	0.0	1.1	1.16	1.16	105.5	105.5	0.0
27127-01	Zinc	0.0	1.1	1.22	1.20	110.9	109.1	1.7
27119-LCS	Silver	0.0	1.0	0.863	0.880	86.3	88.0	-2.0

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

* Poor spike recovery due to matrix interference. The method is in control as indicated by the laboratory control sample. (LCS)

Released by: _____
Laboratory Supervisor

Report Date 9/27/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Quality Control Results

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27119-01	Bicarb/Carb	416.	250.	683.	674.	106.8	103.2	1.3
27119-01	Chloride	83.8	20.	106.4	105.4	113.0	108.0	0.9
27119-01	Sulfate	81.3	50.	129.4	127.1	96.2	91.6	1.8
27119-01	Ammonia	0.0	1.0	0.942	0.881	94.2	88.1	6.7
27119-01	TDS	721.	†	†	715.	†	†	0.8
27119-01	TOC	0.0	10.	10.20	9.53	102.0	95.3	6.8
27119-01	Nitrate	3.2	1.0	3.98	3.97	78.	77.	0.3

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

Released by: _____
Laboratory Supervisor

Report Date 9/27/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 10, 1996
Lab Sample ID.: 27119
Set Description: Two Water Samples

Contact: Kevin Cosper
Date Received: September 11, 1996
Received By: Andrea Greenwood

Quality Control Results

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27119-01	t-1,2-Dichoroethene	0.0	20.0	19.7	21.7	98.5	109.	-9.66
27119-01	Benzene	0.0	20.0	19.1	21.9	95.5	110.	-13.7
27119-01	Trichloroethene	0.0	20.0	19.7	19.4	98.5	97.0	1.53
27119-01	Toluene	0.0	20.0	18.9	19.2	94.5	96.0	-1.57
27119-01	Chlorobenzene	0.0	20.0	20.4	20.4	102.	102.	0.0

Released by: _____
Laboratory Supervisor

Report Date 9/27/96

LANDFILL
SAMPLE BOTTLE PRESERVATION

Measurement	Container/ Lot #	Preservative/ Lot #	Amount
Anions & Cations and Other General Characteristics	2L HDPE ST/23362040 ST/23084070	NONE/ NONE	NA
Metals	1L HDPE C3308020 C4111010	HNO_3 to pH<2 Fisher 11505	2ml1:1 HNO_3
Nitrate/Nitrite TOC	1L HDPE C3308020 C4111010	Cool, 4°C H_2SO_4 to pH<2 Fisher 955101	2ml 1:1 H_2SO_4
Volatile Organics	Two 40ml Clear Vials B5110020	Cool, 4°C HCl to pH<2 Fisher 933850	10 Drops 1:1 HCl

Lab ID: 27119

Date Received: 9-11-96 Temperature: 4° Intials: AG

All sample bottles are QA level I / Eagle Picher.

Certificate of Analysis

Bottle Type & QA Level:ST/2 Level 1
Description:2 Liter White HDPE Bleach Jug

Lot No.:ST/23084070
Date:4-5-93

INORGANIC QUALITY ASSURANCE

This Certificate verifies that this lot was cleaned to the recommended EPA wash procedure as set forth in the EPA Statement of Work "Specifications and Guidance For Obtaining Contaminant-Free Sample Containers", and this lot was tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "The Superfund Analytical Method For Low Concentration Water For Inorganic Analysis 10/91", (Document # ILC02.0).

ANALYTE	CONTRACT REQUIRED DETECTION LIMIT (ug/L)
Ag (Silver)	< 10
Al (Aluminum)	< 100
As (Arsenic)	< 0.5
Ba (Barium)	< 20
Be (Beryllium)	< 0.5
Ca (Calcium)	< 500
Cd (Cadmium)	< 1
CN (Cyanide)	< 10
Co (Cobalt)	< 10
Cr (Chromium)	< 10
Cu (Copper)	< 10
F (Fluoride)	< 200
Fe (Iron)	< 100
Hg (Mercury)	< 0.2
K (Potassium)	< 100
Mg (Magnesium)	< 100
Mn (Manganese)	< 10
Na (Sodium)	< 100
Ni (Nickel)	< 20
Pb (Lead)	< 2
Sb (Antimony)	< 5
Se (Selenium)	< 2
Tl (Thallium)	< 10
V (Vanadium)	< 10
Zn (Zinc)	< 20

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Juli Shepherd 136

EAGLE EP PICHER
ENVIRONMENTAL SERVICES
36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

Certificate of Analysis

Bottle Type & QA Level:C Level 1 — Lot No.:C4111010
Description:1 Liter White HDPE WM — Date:4-28-94

INORGANIC QUALITY ASSURANCE

This Certificate verifies that this lot was cleaned to the recommended EPA wash procedure as set forth in the EPA Statement of Work "Specifications and Guidance For Obtaining Contaminant-Free Sample Containers", and this lot was tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "The Superfund Analytical Method For Low Concentration Water For Inorganic Analysis 10/91", (Document # ILC02.0).

ANALYTE	CONTRACT REQUIRED DETECTION LIMIT (ug/L)
Ag (Silver)	< 10
Al (Aluminum)	< 100
As (Arsenic)	< 0.5
Ba (Barium)	< 20
Be (Beryllium)	< 0.5
Ca (Calcium)	< 500
Cd (Cadmium)	< 1
CN (Cyanide)	< 10
Co (Cobalt)	< 10
Cr (Chromium)	< 10
Cu (Copper)	< 10
F (Fluoride)	< 200
Fe (Iron)	< 100
Hg (Mercury)	< 0.2
K (Potassium)	< 100
Mg (Magnesium)	< 100
Mn (Manganese)	< 10
Na (Sodium)	< 100
Ni (Nickel)	< 20
Pb (Lead)	< 2
Sb (Antimony)	< 5
Se (Selenium)	< 2
Tl (Thallium)	< 10
V (Vanadium)	< 10
Zn (Zinc)	< 20

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Jul Shepherd 138

EAGLE PICHER
ENVIRONMENTAL SERVICES
36 B. J. TUNNELL BLVD. • MIAMI, OKLAHOMA 74354 • (800) 331-7425

Certificate of Analysis

Bottle Type & QA Level:C Level 1 — Lot No.:C3308020
Description:1 Liter White HDPE — Date:11-10-93

INORGANIC QUALITY ASSURANCE

This Certificate verifies that this lot was cleaned to the recommended EPA wash procedure as set forth in the EPA Statement of Work "Specifications and Guidance For Obtaining Contaminant-Free Sample Containers", and this lot was tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "The Superfund Analytical Method For Low Concentration Water For Inorganic Analysis 10/91", (Document # ILC02.0).

ANALYTE	CONTRACT REQUIRED DETECTION LIMIT (ug/L)
Ag (Silver)	< 10
Al (Aluminum)	< 100
As (Arsenic)	< 0.5
Ba (Barium)	< 20
Be (Beryllium)	< 0.5
Ca (Calcium)	< 500
Cd (Cadmium)	< 1
CN (Cyanide)	< 10
Co (Cobalt)	< 10
Cr (Chromium)	< 10
Cu (Copper)	< 10
F (Fluoride)	< 200
Fe (Iron)	< 100
Hg (Mercury)	< 0.2
K (Potassium)	< 100
Mg (Magnesium)	< 100
Mn (Manganese)	< 10
Na (Sodium)	< 100
Ni (Nickel)	< 20
Pb (Lead)	< 2
Sb (Antimony)	< 5
Se (Selenium)	< 2
Tl (Thallium)	< 10
V (Vanadium)	< 10
Zn (Zinc)	< 20

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Jul Shepherd 138

EAGLE PICHER
ENVIRONMENTAL SERVICES
36 B. J. TUNNELL BLVD • MIAMI, OKLAHOMA 74354 • (800) 331-7425

Certificate of Analysis

Volatiles Quality Assurance

Bottle Type & QA Level:B Level 1 Lot No.:B5110020
Wash-B Description:40 mL. Clear Vial

VOLATILES QUALITY ASSURANCE

This Certificate verifies that this lot of bottles has been cleaned according to the EPA wash procedure set forth in the EPA Statement of Work "Specifications and Guidance for Obtaining Contaminant-Free Sample Containers" and that this lot has been tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "Superfund Analytical Methods For Low Concentration Water For Organics Analysis 6/91", (Document # OLC02.0).

ANALYTE	CONTRACT REQUIRED QUANTITATION LIMIT (ug/L)
Chloromethane	< 1
Bromomethane	< 1
Vinyl chloride	< 1
Chloroethane	< 1
Methylene chloride	< 2
Acetone	< 5
Carbon disulfide	< 1
1,1-Dichloroethene	< 1
1,1-Dichloroethane	< 1
cis-1,2-Dichloroethene	< 1
trans-1,2-Dichloroethene	< 1
Chloroform	< 1
1,2-Dichloroethane	< 1
2-Butanone	< 5
Bromochloromethane	< 1
1,1,1-Trichloroethane	< 1
Carbon tetrachloride	< 1
Bromodichloromethane	< 1
1,2-Dichloropropane	< 1
cis-1,3-Dichloropropene	< 1

ANALYTE	CONTRACT REQUIRED QUANTITATION LIMIT (ug/L)
Trichloroethene	< 1
Dibromochloromethane	< 1
1,1,2-Trichloroethane	< 1
Benzene	< 1
trans-1,3-Dichloropropene	< 1
Bromoform	< 1
4-Methyl-2-pentanone	< 5
2-Hexanone	< 5
Tetrachloroethene	< 1
1,1,2,2-Tetrachloroethane	< 1
1,2-Dibromoethane	< 1
Toluene	< 1
Chlorobenzene	< 1
Ethylbenzene	< 1
Styrene	< 1
Xylenes (total)	< 1
1,3-Dichlorobenzene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
1,2-Dibromo-3-chloropropane	< 1

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Jul Shepherd 138

CLIENT [illegible]

ADDRESS 1160 Wiley Post Way
SLC UT 84116

PHONE/FAX 532-2230

CONTACT Kevin Cosper

SITE Payson City Landfill

SAMPLER'S SIGNATURE [signature]

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
Fax (801) 263-8687

LAB # 27127

SAMPLE ID	SAMPLE DATE/TIME	MATRIX	# OF CONTAINERS	BTX/TPH	VOLATILES	SEMIVOLATILES	D LIST METALS	ET PROFILE	TURN AROUND TIME	COMMENTS
MW-2	9.11.96/16:00	water	5						S	See Payson city
TRIP BLANKS	N/A	N/A	2						S	landfill PARAMETERS
Field BLANKS	N/A	N/A	2						S	Tables

TURN AROUND TIMES
I = Priority I
II = Priority II
III = 5 Day Rush
(S) Standard

RUN BOTH DISSOLVED AND TOTAL METALS ANALYSES.

[signature] 9/12/96
KEVN B. COSPER

Quote # /P.O. #

Special Instructions: DO NOT RUN TRIP or Field BLANKS - Hold until Further notice.
QC level II

Relinquished By: Signature	Date/Time	Received By: Signature	Date/Time
[signature]	9.11.96/9.25		
PRINT NAME Kent Malmquist		PRINT NAME	
Relinquished By: Signature	Date/Time	Received By: Signature	Date/Time
PRINT NAME		PRINT NAME	
Dispatched By: Signature	Date/Time	Received for Laboratory By: [signature]	Date/Time 9/12/96
PRINT NAME		PRINT NAME Elena Hayward 0905	

ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Bingham Environmental
Lab Sample ID.: 27127
Set Description: Three Water Samples

Contact: Kevin Cosper
Received By: Elona Hayward

Analysis Requested:	Method Ref. Number:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260 Purge & Trap GC/MS	September 17, 1996

Lab Sample ID.:
27127-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

AMERICAN WEST ANALYTICAL LABORATORIES

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84115

(801) 263-8686
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Fax (801) 263-8687

Lab Sample ID.:
27127-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
trans-1,2-Dichloroethene	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
cis-1,3-Dichloropropene	2.0	< 2.0
trans-1,3-Dichloropropene	2.0	<2.0
Ethylbenzene	2.0	< 2.0
2-Hexanone	5.0	< 5.0
Methylene chloride	2.0	< 2.0
4-Methyl-2-pentanone	5.0	< 5.0
Styrene	2.0	< 2.0
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
Vinyl acetate	5.0	< 5.0
Vinyl chloride	2.0	< 2.0
ortho-Xylene	2.0	< 2.0
meta and para-Xylene	2.0	< 2.0
Iodomethane	5.0	< 5.0
trans 1,4-Dichloro-2-Butene	10.	< 10.

<Value = None detected above the specified reporting limit, or a value that reflects a reasonable limit due to interferences.

Released by: Diane Baller
Laboratory Supervisor

Report Date 10/1/96

ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127
Set Description: Three Water Samples

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward

Analysis Requested:
Volatile Organics

Method Ref. Number:
EPA SW-846 #8260
Purge & Trap GC/MS

Date Analyzed:
September 17, 1996

Lab Sample ID.:
27127-02

Field Sample ID.:
Payson City Landfill/
Trip Blanks

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

AMERICAN
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84115

(801) 263-8686
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Fax (801) 263-8687

Lab Sample ID.:
27127-02

Field Sample ID.:
Payson City Landfill/
Trip Blanks

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
trans-1,2-Dichloroethene	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
cis-1,3-Dichloropropene	2.0	< 2.0
trans-1,3-Dichloropropene	2.0	<2.0
Ethylbenzene	2.0	< 2.0
2-Hexanone	5.0	< 5.0
Methylene chloride	2.0	< 2.0
4-Methyl-2-pentanone	5.0	< 5.0
Styrene	2.0	< 2.0
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
Vinyl acetate	5.0	< 5.0
Vinyl chloride	2.0	< 2.0
ortho-Xylene	2.0	< 2.0
meta and para-Xylene	2.0	< 2.0
Iodomethane	5.0	<5.0
trans 1,4-Dichloro-2-Butene	10.	<10.

<Value = None detected above the specified reporting limit, or a value that reflects a reasonable limit due to interferences.

Released by: Diane Baker
Laboratory Supervisor

Report Date 10/1/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127
Set Description: Three Water Samples

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward

Quality Control Results

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27127-01	Silver	0.02	1.1	1.03	0.957	91.8	85.2	7.3
27127-01	Arsenic	0.11	1.0	0.745	0.765	63.5	65.5	-2.6
27127-01	Barium	2.1	1.1	3.14	3.16	94.5	96.4	-0.6
27127-01	Beryllium	0.005	1.1	1.07	1.09	96.8	98.6	-1.9
27127-01	Calcium	30.2	†	†	32.1	†	†	-6.1
27127-01	Cadmium	0.012	1.1	1.06	1.07	95.3	96.2	-0.9
27127-01	Cobalt	0.10	1.1	1.14	1.15	94.5	95.5	-0.9
27127-01	Chromium	0.25	1.1	1.30	1.31	95.5	96.4	-0.8
27127-01	Copper	0.14	1.1	1.21	1.23	97.3	99.1	-1.6
27127-01	Iron	79.	*	*	*	*	*	*
27127-01	Mercury	0.0	5.0	5.84	5.69	116.8	113.8	2.6
27127-01	Potassium	17.3	†	†	17.5	†	†	-1.1

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

* Recovery calculations are not required if the concentration added is less than 10% of the sample background concentration.

Released by: _____
Laboratory Supervisor

Report Date 9/30/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127
Set Description: Three Water Samples

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward

Quality Control Results

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27127-01	Magnesium	8.69	†	†	8.94	†	†	-2.8
27127-01	Manganese	4.7	1.1	5.74	5.77	94.5	97.3	-0.5
27127-01	Sodium	30.8	†	†	31.0	†	†	-0.6
27127-01	Nickel	0.27	1.1	1.29	1.31	92.7	94.5	-1.5
27127-01	Lead	0.061	1.0	0.956	0.919	89.5	85.8	3.9
27127-01	Antimony	0.0	0.067	0.0830	0.0829	123.9	123.7	0.1
27127-01	Selenium	0.0	1.0	0.607	0.605	60.7	60.5	0.3
27127-01	Thallium	0.0	0.067	0.0615	0.0633	91.8	94.5	-2.9
27127-01	Vanadium	0.16	1.1	1.20	1.22	94.5	96.4	-1.7
27127-01	Zinc	0.70	1.1	1.81	1.83	100.9	102.7	-1.1

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

* Recovery calculations are not required if the concentration added is less than 10% of the sample background concentration.

Released by: _____
Laboratory Supervisor

Report Date 9/30/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127
Set Description: Three Water Samples

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward

Quality Control Results

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27127-01	Bicarb/Carb	1,015.	500.	1,532.	1,522.	103.4	101.4	0.7
27127-01	Chloride	51.4	100.	159.1	154.2	107.7	102.8	3.1
27127-01	Sulfate	0.0	10.	10.58	10.44	105.8	104.4	1.3
27127-01	TDS	227.	†	†	233.	†	†	-2.6
27127-01	TOC	2.0	10.	11.01	11.00	90.1	90.0	0.1
27127-01	Ammonia	0.0	1.0	0.83	0.81	83.0	81.0	2.4
27127-01	Nitrate	0.0	0.1	0.098	0.095	98.	95.	3.1

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

Released by: _____
Laboratory Supervisor

Report Date 9/27/96

QUALITY CONTROL REPORT

Client: Bingham Environmental
Date Sampled: September 11, 1996
Lab Sample ID.: 27127
Set Description: Three Water Samples

Contact: Kevin Cosper
Date Received: September 12, 1996
Received By: Elona Hayward

Quality Control Results

Sample #	Compound	Original Concentration (SR)	Spike Added (SA)	Spike Result (SSR)	Spike Dup Result (SDR)	% Spike Recovery (%SR)	% Spike Dup Recovery (%SDR)	% Duplicate Difference (RPD)
27119-01	t-1,2-Dichoroethene	0.0	20.0	19.7	21.7	98.5	109.	-9.66
27119-01	Benzene	0.0	20.0	19.1	21.9	95.5	110.	-13.7
27119-01	Trichloroethene	0.0	20.0	19.7	19.4	98.5	97.0	1.53
27119-01	Toluene	0.0	20.0	18.9	19.2	94.5	96.0	-1.57
27119-01	Chlorobenzene	0.0	20.0	20.4	20.4	102.	102.	0.0

$$RPD = \frac{(SSR - SDR)}{\left(\frac{SSR + SDR}{2}\right)} * 100 \qquad \%SR = \frac{(SSR - SR)}{SA} * 100 \qquad \%SDR = \frac{(SDR - SR)}{SA} * 100$$

Released by: Diane Baker
Laboratory Supervisor

Report Date 9/27/96

LANDFILL
SAMPLE BOTTLE PRESERVATION

Measurement	Container/ Lot #	Preservative/ Lot #	Amount
Anions & Cations and Other General Characteristics	2L HDPE ST/23362040 ST/23084070	NONE/ NONE	NA
Metals	1L HDPE C3308020 C4111010	HNO_3 to pH<2 Fisher 11505	2ml1:1 HNO_3
Nitrate/Nitrite TOC	1L HDPE C3308020 C4111010	Cool, 4°C H_2SO_4 to pH<2 Fisher 955101	2ml 1:1 H_2SO_4
Volatile Organics	Two 40ml Clear Vials B5110020	Cool, 4°C HCl to pH<2 Fisher 933850	10 Drops 1:1 HCl

Lab ID: 27127

Date Received: 9-12-96 Temperature: 4° Intials: el

All sample bottles are QA level I / Eagle Picher.

Certificate of Analysis

Bottle Type & QA Level:ST/2 Level 1 — Lot No.:ST/23084070
Description:2 Liter White HDPE Bleach Jug — Date:4-5-93

INORGANIC QUALITY ASSURANCE

This Certificate verifies that this lot was cleaned to the recommended EPA wash procedure as set forth in the EPA Statement of Work "Specifications and Guidance For Obtaining Contaminant-Free Sample Containers", and this lot was tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "The Superfund Analytical Method For Low Concentration Water For Inorganic Analysis 10/91", (Document # ILC02.0).

ANALYTE	CONTRACT REQUIRED DETECTION LIMIT (ug/L)
Ag (Silver)	< 10
Al (Aluminum)	< 100
As (Arsenic)	< 0.5
Ba (Barium)	< 20
Be (Beryllium)	< 0.5
Ca (Calcium)	< 500
Cd (Cadmium)	< 1
CN (Cyanide)	< 10
Co (Cobalt)	< 10
Cr (Chromium)	< 10
Cu (Copper)	< 10
F (Fluoride)	< 200
Fe (Iron)	< 100
Hg (Mercury)	< 0.2
K (Potassium)	< 100
Mg (Magnesium)	< 100
Mn (Manganese)	< 10
Na (Sodium)	< 100
Ni (Nickel)	< 20
Pb (Lead)	< 2
Sb (Antimony)	< 5
Se (Selenium)	< 2
Tl (Thallium)	< 10
V (Vanadium)	< 10
Zn (Zinc)	< 20

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Jul Shepherd 138

EAGLE PICHER
ENVIRONMENTAL SERVICES
36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

Certificate of Analysis

Bottle Type & QA Level:C Level 1 — Lot No.:C4111010
Description:1 Liter White HDPE WM — Date:4-28-94

INORGANIC QUALITY ASSURANCE

This Certificate verifies that this lot was cleaned to the recommended EPA wash procedure as set forth in the EPA Statement of Work "Specifications and Guidance For Obtaining Contaminant-Free Sample Containers", and this lot was tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "The Superfund Analytical Method For Low Concentration Water For Inorganic Analysis 10/91", (Document # ILC02.0).

ANALYTE	CONTRACT REQUIRED DETECTION LIMIT (ug/L)
Ag (Silver)	< 10
Al (Aluminum)	< 100
As (Arsenic)	< 0.5
Ba (Barium)	< 20
Be (Beryllium)	< 0.5
Ca (Calcium)	< 500
Cd (Cadmium)	< 1
CN (Cyanide)	< 10
Co (Cobalt)	< 10
Cr (Chromium)	< 10
Cu (Copper)	< 10
F (Fluoride)	< 200
Fe (Iron)	< 100
Hg (Mercury)	< 0.2
K (Potassium)	< 100
Mg (Magnesium)	< 100
Mn (Manganese)	< 10
Na (Sodium)	< 100
Ni (Nickel)	< 20
Pb (Lead)	< 2
Sb (Antimony)	< 5
Se (Selenium)	< 2
Tl (Thallium)	< 10
V (Vanadium)	< 10
Zn (Zinc)	< 20

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Jul Shepherd 138

EAGLE PICHER
ENVIRONMENTAL SERVICES
36 B. J. TUNNELL BLVD. • MIAMI, OKLAHOMA 74354 • (800) 331-7425

Certificate of Analysis

Bottle Type & QA Level:C Level 1
Description:1 Liter White HDPE

Lot No.:C3308020
Date:11-10-93

INORGANIC QUALITY ASSURANCE

This Certificate verifies that this lot was cleaned to the recommended EPA wash procedure as set forth in the EPA Statement of Work "Specifications and Guidance For Obtaining Contaminant-Free Sample Containers", and this lot was tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "The Superfund Analytical Method For Low Concentration Water For Inorganic Analysis 10/91", (Document # ILC02.0).

ANALYTE	CONTRACT REQUIRED DETECTION LIMIT (ug/L)
Ag (Silver)	< 10
Al (Aluminum)	< 100
As (Arsenic)	< 0.5
Ba (Barium)	< 20
Be (Beryllium)	< 0.5
Ca (Calcium)	< 500
Cd (Cadmium)	< 1
CN (Cyanide)	< 10
Co (Cobalt)	< 10
Cr (Chromium)	< 10
Cu (Copper)	< 10
F (Fluoride)	< 200
Fe (Iron)	< 100
Hg (Mercury)	< 0.2
K (Potassium)	< 100
Mg (Magnesium)	< 100
Mn (Manganese)	< 10
Na (Sodium)	< 100
Ni (Nickel)	< 20
Pb (Lead)	< 2
Sb (Antimony)	< 5
Se (Selenium)	< 2
Tl (Thallium)	< 10
V (Vanadium)	< 10
Zn (Zinc)	< 20

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Jul Shepherd 138

EAGLE PICHER
ENVIRONMENTAL SERVICES
36 B. J. TUNNELL BLVD. • MIAMI, OKLAHOMA 74354 • (800) 331-7425

Certificate of Analysis

Volatiles Quality Assurance

Bottle Type & QA Level:B Level 1 Lot No.:B5110020
Wash-B Description:40 mL. Clear Vial

VOLATILES QUALITY ASSURANCE

This Certificate verifies that this lot of bottles has been cleaned according to the EPA wash procedure set forth in the EPA Statement of Work "Specifications and Guidance for Obtaining Contaminant-Free Sample Containers" and that this lot has been tested and found to comply with or be lower than the EPA specifications as set forth in the EPA Statement of Work "Superfund Analytical Methods For Low Concentration Water For Organics Analysis 6/91", (Document # OLC02.0).

ANALYTE	CONTRACT REQUIRED QUANTITATION LIMIT (ug/L)
Chloromethane	< 1
Bromomethane	< 1
Vinyl chloride	< 1
Chloroethane	< 1
Methylene chloride	< 2
Acetone	< 5
Carbon disulfide	< 1
1,1-Dichloroethene	< 1
1,1-Dichloroethane	< 1
cis-1,2-Dichloroethene	< 1
trans-1,2-Dichloroethene	< 1
Chloroform	< 1
1,2-Dichloroethane	< 1
2-Butanone	< 5
Bromochloromethane	< 1
1,1,1-Trichloroethane	< 1
Carbon tetrachloride	< 1
Bromodichloromethane	< 1
1,2-Dichloropropane	< 1
cis-1,3-Dichloropropene	< 1

ANALYTE	CONTRACT REQUIRED QUANTITATION LIMIT (ug/L)
Trichloroethene	< 1
Dibromochloromethane	< 1
1,1,2-Trichloroethane	< 1
Benzene	< 1
trans-1,3-Dichloropropene	< 1
Bromoform	< 1
4-Methyl-2-pentanone	< 5
2-Hexanone	< 5
Tetrachloroethene	< 1
1,1,2,2-Tetrachloroethane	< 1
1,2-Dibromoethane	< 1
Toluene	< 1
Chlorobenzene	< 1
Ethylbenzene	< 1
Styrene	< 1
Xylenes (total)	< 1
1,3-Dichlorobenzene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
1,2-Dibromo-3-chloropropane	< 1

IF EPES CAN BE OF ANY FURTHER ASSISTANCE, PLEASE CALL (800) 331-7425 AND ASK FOR OUR TECHNICAL SERVICE DEPARTMENT.

Approved: Jul Shepherd (136)

V:2W

Mountain States Analytical

No 9733

Sample Chain of Custody

Client Name: Bingham ENV P.O. #

Phone #: 532-2230 Fax #:

Project Name/#: PAYSON CITY LANDFill

Sampler: Kent Malmquist

Analysis Required

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total of Containers	1,2-DIBROMOETHANE 504								Rush?		Remarks	Temp. of Samples Upon Receipt
mw-1	9.10.96	14:35				X		2	X										Please Hold	4°C
mw-3	9.10.96	15:30				X		2	X										TRIP & FIELD	4°C
mw-2	9.11.96	16:00				X		2	X										BLANKS until	4°C
TRIP BLANKS	N/A	N/A				X		2	X									bubbles both vials	Further Notice	4°C
FIELD BLANKS	N/A	N/A				X		2	X									bubbles both vials	NOTE: PLEAS	4°C
																			See attached	
																			PAYSON CITY landfill	
																			Parameter table.	
																			3% QC Summary	
																			use Bingham sample for QC	

Special Ins.

Name of Shipper	Airbill No.	Date	Time

Received By (Lab)	Date	Time	Seals Intact?
			yes

Sample relinquished by:	Date	Time	Sample received by:	Date	Time
Kent Malmquist	9.12.96	9:55	Pam Olsen	09/12/96	09:55

Turnaround Time Requested (please circle): (Normal) Rush

(Rush TAT is subject to MSAI approval and surcharge)

Report Results By: (Date)

Rush results requested by (please circle): Phone (Fax)

Report Results to: Kevin Cosper

Type of Disposal:

Authorized for Disposal by:

Date/Time of Disposal:

Disposed of by:

EPA 504.1 (Unregulated Volatiles, List 2)

Client I.D.: Method Blank	Final Volume: 2 ml
Sample No.: 960920 WBEDB	Sample Volume: 35 ml
Group No.: 13476	Dilution Factor: 1

Compound	Initial Reading ug/l	Actual Conc. ug/l	Reported Result ug/l
Ethylene Dibromide (EDB)	0.00	0.00	< 0.05
1,2-Dibromo-3-chloropropane (DBCP)	0.00	0.00	< 0.05

504.1 (Unregulated/Regulated Volatiles, List 2)

Client: BE UT1 Date: 9/24/96

Group no(s).: 13476

Matrix Spike - MSAI Sample No.: 960920 WBEDB

COMPOUND	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS % Recovery	QC. Limits Recovery
EDB (Dibromoethane)	2.0	0.02	2.35	117	50-150
DBCP (Dibromochloropropane)	2.0	0.00	2.37	119	50-150

COMPOUND	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD % Recovery	% RPD	QC LIMITS RPD	QC LIMITS Recovery
EDB (Dibromoethane)	2.0	2.48	124	6	20	50-150
DBCP (Dibromochloropropane)	2.0	2.45	123	3	20	50-150

NOTE: The in-house limits were established by statistical evaluation.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

COMMENTS: _____

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

127 South 500 East, Suite 300
Salt Lake City, Utah 84102-1959
801 521 9255 Tel
801 521 0380 Fax
800 432 6375 Tel

February 26, 1998

Mr. Glade J. Robbins
City Engineer
Payson City Corporation
439 West Utah Avenue
Payson, Utah 84651

Letter Report
Monitoring Well MW-4
For Payson City Corporation

Dear Mr. Robbins:

Dames & Moore is pleased to submit the following report on the installation and the initial ground water sampling of monitoring well MW-4. This report contains the drilling log and ground water sampling data which includes analytical results, parameters and gradient.

MW-4 INSTALLATION

Monitoring well MW-4 was drilled to a total depth of 345 feet below ground surface (bgs) in December of 1997. Subsurface soils encountered were primarily fine sand and silt with some clays and gravel lenses. The well was completed to a depth of 340 bgs with 50 feet of screen. The latest ground water elevation was taken February 10, 1998 and was reported as 308.01 feet below the top of the PVC or about 305.51 bgs. The monitoring well was approved by the State of Utah, Department of Natural Resources, Division of Water Right and has been assigned the number Monitor Well #: 97-51-002-M. The drill log with well completion data is presented on Figure 1.

GROUND WATER SAMPLING

The well was sampled on January 9, 1998 after well development that removed about 150 gallons of water from the well. The development was completed by using a bailor attached to a winch line on a boom truck. Development was completed when the pH stabilized and the water was relatively free of sediment. Ground water parameters collected during development are presented in Table 1. Laboratory analysis was completed by American West Analytical Laboratories of Salt Lake City, Utah. The water sample was analyzed for inorganics which included total metals and other chemistries, and organics for volatile organic compounds. Of the 31 constituents analyzed for inorganics, 24 were above the laboratory detection limits. All organic constituents were all below the laboratory detection limits. All laboratory reports are presented as Appendix A.

GROUND WATER GRADIENT

A ground water contour map based on ground water elevations measured on February 10, 1998 is presented as Figure 2. Insufficient information is available based upon the measured ground water elevations to determine a ground water gradient.

If you have any questions please contact either Kent Bradford or Bill Bragdon at (801)-521-9255 or (800)432-6375.

Sincerely,
DAMES & MOORE

William C. Bragdon
Project Geologist

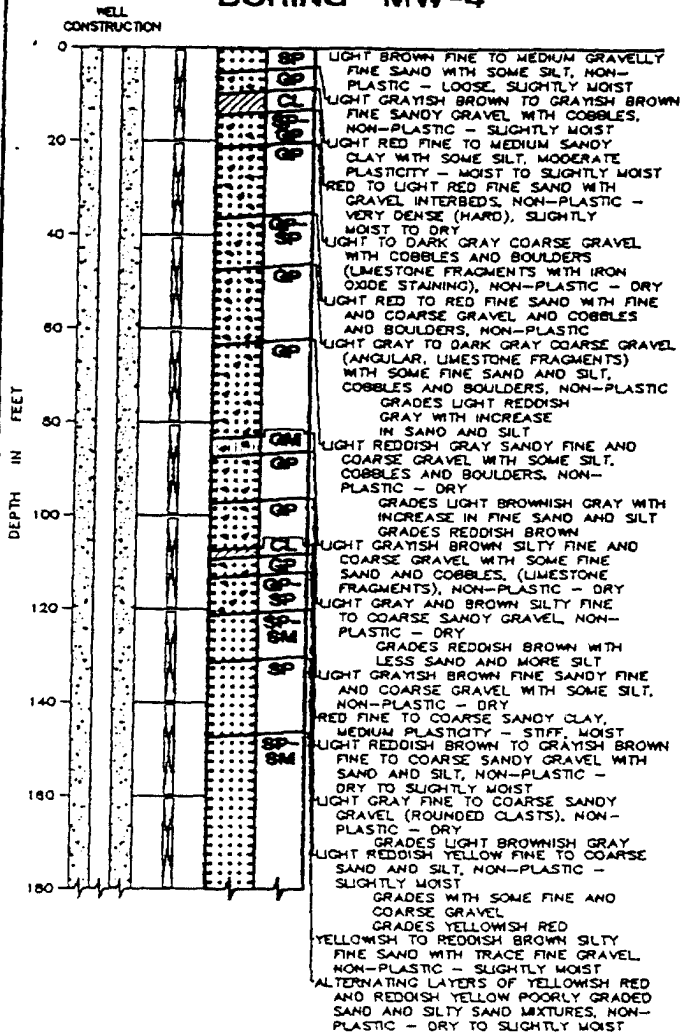
Kent J. Bradford C.P.C.
Project Manager

Attachments:

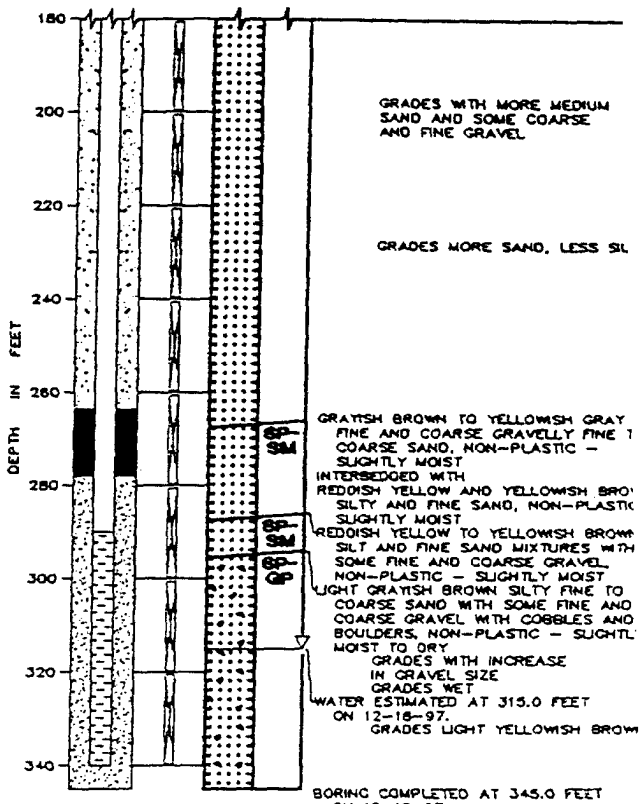
Figure 1	Log of Soil Boring
Figure 2	Ground Water Contour Map
Table 1	Ground Water Sampling Observations
Table 2	Summary of Ground Water Elevations
Appendix A	Laboratory Data Analysis

FILE 05440-004-182 (p:\PAYSON\DWGS\MW-4.DWG) BY _____ DATE _____ CHECKED BY _____ DATE _____

BORING MW-4

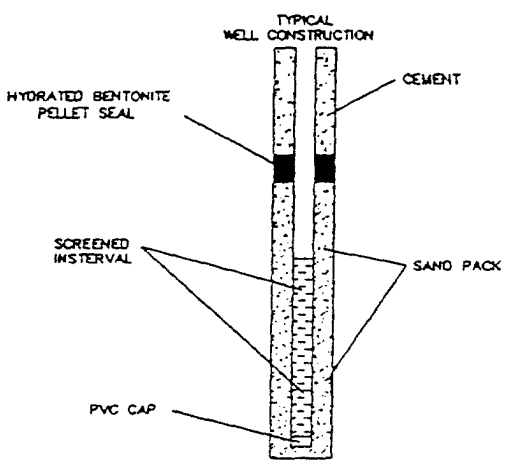


BORING MW-4



KEY

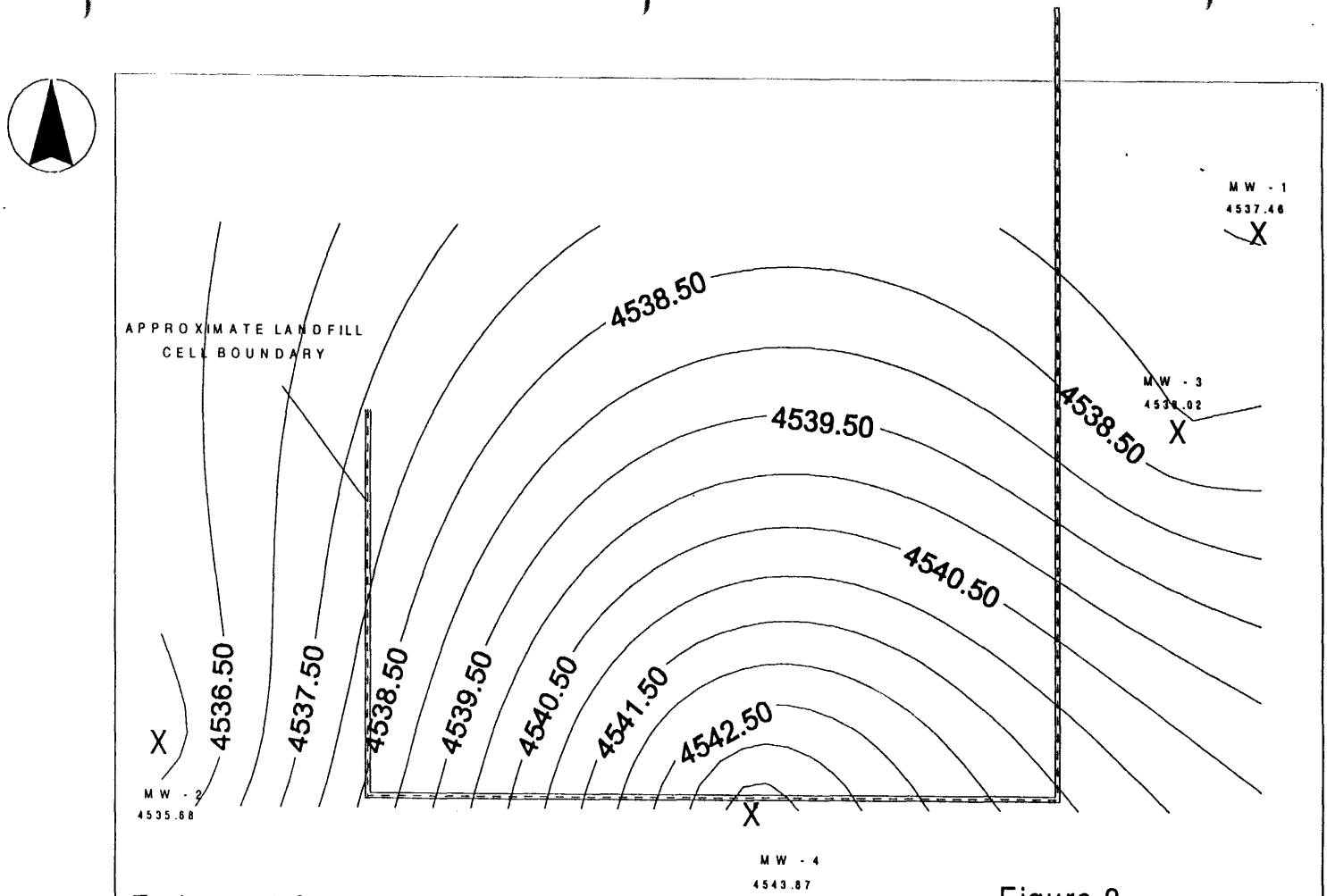
DEPTH OF SAMPLE (CONTINUOUS)



LOG OF BORING

Dames & Moore

FIGURE 1



Estimated Ground Water Elevation Contours

Contours based upon elevations measured Feb 10, 1998 by Payson City.

Figure 2

X WELL

1" = 2000 ft

Dames & Moore

TABLE 1
PAYSON CITY CORPORATION LANDFILL
GROUND WATER SAMPLING OBSERVATIONS MW-4

DATE SAMPLED	PURGED VOLUME	pH	TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (uMhos/cm)	OBSERVATIONS
1/13/98	1 Bailer	8.16	14.3	1000	Opaque, light reddish brown, trace sediment, no odor
	25 gallons	8.00	12.2	700	Opaque, light reddish brown, trace sediment, no odor
	50 gallons	7.86	11.5	650	Opaque, light reddish brown, trace sediment, no odor
	75 gallons	7.55	12.0	650	Opaque, light reddish brown, trace sediment, no odor
	100 gallons	7.45	12.3	650	Opaque, light reddish brown, trace sediment, no odor
	150 gallons	7.45	10.9	650	Cloudy, light reddish brown, trace to no sediment, no odor

TABLE 2

SUMMARY OF GROUNDWATER ELEVATION PAYSON CITY CLASS V LANDFILL									
Well ID	TOC* Elevation (feet)	Sept 10 1996		Feb 18 1997		Apr 18 1997		Feb 10 1998	
		Depth to Water** (feet)	Ground-water Elevation (feet)	Depth to Water** (feet)	Ground-water Elevation (feet)	Depth to Water** (feet)	Ground-water Elevation (feet)	Depth to Water** (feet)	Ground-water Elevation (feet)
MW-1	4760.47	221.23	4539.24	223.21	4537.26	223.25	4537.22	223.01	4537.46
MW-2	4944.59	404.72	4539.87	407.37	4537.22	407.04	4537.55	408.91	4535.68
MW-3	4765.37	225.5	4539.87	227.86	4537.51	227.59	4537.78	227.35	4538.02
MW-4	4851.88	NA	NA	NA	NA	NA	NA	308.01	4543.87

APPENDIX A

INORGANIC ANALYSIS REPORT

Client: Dames & Moore
Date Sampled: January 09, 1998

Contact: Kent Bradford
Date Received: January 13, 1998

Field Sample ID:
PAYSON LANDFILL
MW-4

Lab Sample ID:
L31992-1

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Analytical Results

Units = mg/L

TOTAL METALS	Analysis Date:	Method Used:	Reporting Limit:	Amount Detected:
Antimony	01/26/98	200.9	0.005	**0.006**
Arsenic	01/26/98	200.9	0.005	**0.18**
Barium	01/22/98	200.7	0.002	**0.362**
Beryllium	01/22/98	200.7	0.001	**0.007**
Cadmium	01/22/98	200.7	0.004	**0.006**
Calcium	01/22/98	200.7	0.05	**190.**
Chromium	01/22/98	200.7	0.01	**0.13**
Cobalt	01/22/98	200.7	0.01	**0.06**
Copper	01/22/98	200.7	0.004	**0.08**
Iron	01/22/98	200.7	0.01	**34.**
Lead	01/26/98	200.9	0.005	**0.087**
Magnesium	01/22/98	200.7	0.05	**26.**
Manganese	02/09/98	200.7	0.005	**1.2**
Mercury	01/19/98	245.1	0.001	<0.001
Nickel	01/22/98	200.7	0.005	**0.07**
Potassium	01/22/98	6010	0.1	**15.**
Selenium	01/26/98	200.9	0.005	<0.005
Silver	01/22/98	200.7	0.01	<0.01
Sodium	01/22/98	200.7	0.1	**57.**
Thallium	01/26/98	200.9	0.001	<0.001
Vanadium	01/22/98	6010	0.005	**0.1**
Zinc	02/09/98	200.7	0.005	**1.2**

Released By: _____
Laboratory Supervisor

Report Date: February 13, 1998

INORGANIC ANALYSIS REPORT

Client: Dames & Moore
Date Sampled: January 09, 1998

Contact: Kent Bradford
Date Received: January 13, 1998

Field Sample ID:
PAYSON LANDFILL
MW-4

Lab Sample ID:
L31992-1

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(801) 263-8686
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Fax (801) 263-8687

Analytical Results

OTHER CHEMISTRIES	Analysis Date:	Method Used:	Reporting Limit:	Amount Detected:
Ammonia (as N)	01/15/98	350.1	.05	< .05
Bicarbonate (as CaCO3)	01/14/98	310.1	10.	**230.**
Carbonate (as CaCO3)	01/14/98	310.1	10.	< 10.
Chloride	01/14/98	4500 ClB	.5	**70.**
Nitrate (as N)	01/14/98	353.2	.01	**.71**
Sulfate	01/14/98	375.4	5.0	**25.**
TDS	01/14/98	160.1	1.0	**420.**
TOC	01/15/98	415.2	1.0	< 1.0
pH (pH units)	01/14/98	150.1		**7.7**

Released By: _____
Laboratory Supervisor

Report Date: February 12, 1998

ORGANIC ANALYSIS REPORT

Client: Dames & Moore
Lab Sample ID.: 31992
Set Description: One Water Sample

Contact: Kent Bradford
Received By: Julie Trujillo

AMERICAN
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ANALYTICAL
LABORATORIES

Analysis Requested:	Method Ref. Number:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260 Purge & Trap GC/MS	January 14, 1998

Lab Sample ID.:
31992-Method Blank

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Lab Sample ID.:
31992-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
trans-1,2-Dichloroethene	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
cis-1,3-Dichloropropene	2.0	< 2.0
trans-1,3-Dichloropropene	2.0	< 2.0
Ethylbenzene	2.0	< 2.0
2-Hexanone	5.0	< 5.0
Methylene chloride	2.0	< 2.0
4-Methyl-2-pentanone	5.0	< 5.0
Styrene	2.0	< 2.0
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
Vinyl acetate	5.0	< 5.0
Vinyl chloride	1.0	< 1.0
ortho-Xylene	2.0	< 2.0
meta and para-Xylene	2.0	< 2.0
Iodomethane	2.0	<2.0
trans 1,4-Dichloro-2-Butene	5.0	< 5.0

Released by: _____
Laboratory Supervisor

Report Date 2/3/98

ORGANIC ANALYSIS REPORT

AMERICAN
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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Dames & Moore
Date Sampled: January 9, 1998
Lab Sample ID.: 31992
Set Description: One Water Sample

Contact: Kent Bradford
Date Received: January 13, 1998
Received By: Julie Trujillo

Analysis Requested:	Method Ref. Number:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260 Purge & Trap GC/MS	January 14, 1998

Lab Sample ID.:	Field Sample ID.:
31992-01	Payson Landfill/MW-4

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10.	< 10.
Acrylonitrile	5.0	< 5.0
Benzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
2-Butanone	10.	<10.
Carbon disulfide	2.0	< 2.0
Carbon tetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	5.0	< 5.0
Chloroform	2.0	< 2.0
Chloromethane	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
1,2-Dibromo-3-chloropropane	2.0	< 2.0
1,2-Dibromoethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
cis-1,2-Dichloroethene	2.0	< 2.0

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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Lab Sample ID.:
31992-01

Field Sample ID.:
Payson Landfill/MW-4

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
trans-1,2-Dichloroethene	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
cis-1,3-Dichloropropene	2.0	< 2.0
trans-1,3-Dichloropropene	2.0	< 2.0
Ethylbenzene	2.0	< 2.0
2-Hexanone	5.0	< 5.0
Methylene chloride	2.0	< 2.0
4-Methyl-2-pentanone	5.0	< 5.0
Styrene	2.0	< 2.0
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
Vinyl acetate	5.0	< 5.0
*Vinyl chloride	1.0	< 1.0
ortho-Xylene	2.0	< 2.0
meta and para-Xylene	2.0	< 2.0
Iodomethane	2.0	< 2.0
trans 1,4-Dichloro-2-Butene	5.0	< 5.0

* The reporting limit is approaching the MDL.

Released by: _____
Laboratory Supervisor

Report Date 2/3/98

ORGANIC ANALYSIS REPORT

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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Dames & Moore
Lab Sample ID.: 31992
Set Description: One Water Sample

Contact: Kent Bradford
Received By: Julie Trujillo

Analysis Requested:	Method Ref. Number:	Date Analyzed:
Dibromochloropropane Ethylene Dibromide	EPA Method 504 EDB/DBCP by GC/ECD	January 29, 1998

Lab Sample ID.:
31992-Method Blank

Analytical Results — DBCP/EDB

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Dibromochloropropane (DBCP)	0.010	<0.010
Ethylene Dibromide (EDB)	0.010	<0.010

SURROGATE RECOVERIES

Units = %

Compound:	Recovery:	Acceptable Range:
1,2-Dibromopropane	117.	60. - 140.

Released by: _____
Laboratory Supervisor

Report Date 1/30/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: WG12041

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	Sample Dup Recovered	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Calcium	190.	†	†	190.	0.0	75. to 125.	-10. to 10.	119.	75. to 125.
Magnesium	26.	†	†	26.	0.0	75. to 125.	-10. to 10.	104.	75. to 125.
Potassium	15.	†	†	14.	6.9	75. to 125.	-10. to 10.	97.	75. to 125.
Sodium	57.	†	†	53.	7.3	75. to 125.	-10. to 10.	129.	75. to 130.

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

Released by: _____
Laboratory Supervisor

Report Date 2/13/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: WG12041

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovered	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Thallium	ND	0.11	105.0	99.5	5.4	75. to 125.	-20. to 20.	96.2	80. to 120.
Antimony	0.006	0.11	105.6	109.6	-3.7	75. to 125.	-20. to 20.	107.8	80. to 120.
Selenium	ND	0.11	0.0	0.0	0.0	44.9 to 110.1	-10.6 to 10.6	92.3	82.4 to 107.1
Arsenic	0.18	0.11	38.1	26.8	34.8	66.9 to 134.7	-13.1 to 11.7	98.9	76.6 to 122.4
Lead	0.087	0.11	54.1	105.1	-64.1	80. to 120.	-20. to 20.	105.2	80. to 120.

ND= Not Detected

Released by: _____
Laboratory Supervisor

Report Date 2/13/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: (see below)
Alkalinity: WG11980
Sulfate: WG11979
Chloride: WG11978
Nitrate/Nitrite: WG11999
TOC: WG11989
Ammonia: WG12000

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovered	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Alkalinity	228.	250.	101.6	107.2	-2.9	89.7 to 117.5	-10. to 10.	101.9	90. to 110.
Sulfate	25.	100.	98.0	103.0	-4.0	83.1 to 118.0	-14. to 13.3	92.5	90. to 110.
Chloride	70.	80.	102.5	105.0	-1.3	91.1 to 117.6	-10. to 10.	100.0	90. to 110.
Nitrate/Nitrite	0.71	1.0	101.	101.	0.0	72.2 to 112.5	-10. to 10.	101.0	90. to 110.
TOC	ND	10.	100.4	97.6	2.8	78.0 to 121.3	-11. to 12.2	97.4	90. to 110.
Ammonia	ND	1.0	80.6	80.6	0.0	60.2 to 116.9	-10.9 to 10.	99.1	90. to 110.

ND= Not Detected.

Released by: _____
Laboratory Supervisor

Report Date 2/13/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: WG011998

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovered	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Mercury	ND	0.005	100.	102.	-2.0	50.2 to 134.2	-13.6 to 11.2	104.	74.5 to 127.0

ND= Not Detected

Released by: _____
Laboratory Supervisor

Report Date 2/13/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: WG11998

Matrix: Water

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovered	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
EDB	ND	0.25	130.	*	*	60. to 140.	*	94.	60. to 140.
DBCP	ND	0.25	120.	*	*	60. to 140.	*	130.	60. to 140.

ND= Not Detected.

* Duplicates not required by this method.

Released by: _____
Laboratory Supervisor

Report Date 2/3/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: WG12041

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovered	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Silver	0.008	1.0	49.2	55.2	-11.3	36.0 to 136.2	-19.1 to 20.6	101.	96.6 to 117.6
Barium	0.4	1.0	110.	116.	-3.9	84.5 to 117.0	-10. to 10.	105.	90. to 113.9
Beryllium	0.007	1.0	102.3	105.3	-2.9	75. to 125.	-10. to 10.	107.	75. to 125.
Cadmium	0.006	1.0	98.4	101.4	-3.0	82.8 to 116.6	-10. to 10.	105.	98.8 to 117.4
Cobalt	0.06	1.0	97.	100.	-2.9	75. to 125.	-10. to 10.	107.	75. to 125.
Chromium	0.1	1.0	108.	109.	-0.8	83.2 to 116.9	-10. to 10.	108.	101.2 to 117.6
Copper	0.08	1.0	105.	102.	2.7	75. to 125.	-10. to 10.	106.	75. to 125.
Iron	34.	†	†	32.	0.6	75. to 125.	-10. to 10.	110.	75. to 125.
Manganese	1.0	1.0	140. *	140. *	0.0	75. to 125.	-10. to 10.	108.	75. to 125.
Nickel	0.07	1.0	103.	103.	0.0	75. to 125.	-10. to 10.	109.	75. to 125.
Vanadium	0.1	1.0	100.	100.	0.0	75. to 125.	-10. to 10.	104.	75. to 125.
Zinc	1.0	1.0	140. *	160. *	-10.0	75. to 125.	-10. to 10.	105.	75. to 125.

† Analyte concentration was too high for spike recovery calculations.

† The original and duplicate analysis were used to calculate the RPD value.

† Poor spike recoveries due to suspected sample inhomogeneity. Interference tests within acceptance limits.

* Poor spike recovery due to high suspended solids and resulting sample inhomogenity.

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Laboratory Supervisor

Report Date 2/13/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: WG11998

Matrix: Water

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovered	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
EDB	ND	0.25	130.	*	*	60. to 140.	*	94.	60. to 140.
DBCP	ND	0.25	120.	*	*	60. to 140.	*	130.	60. to 140.

ND= Not Detected.

* Duplicates not required by this method.

Released by: _____
Laboratory Supervisor

Report Date 2/3/98

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: 31992

QC Sample #: 31992-1
QC Batch ID #: WG11989

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Sample Dup Recovered	Relative % Difference
TDS	417.	424.	-1.7 †

† Matrix spikes are not used for this analysis. The original and a duplicate analysis are used to calculate the RPD value.

Released by: _____
Laboratory Supervisor

Report Date 2/13/98

CHAIN OF CUSTODY

WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
Fax (801) 263-8687

LAB # 31992

ADDRESS 127 South 500 East #300 SLC
PHONE/FAX 531-5219255 / 0380
CONTACT Kent Bradford
QUOTE#/P.O.# 05440-004-031
SITE Payson Landfill
SAMPLER'S SIGNATURE

SAMPLE ID	SAMPLE DATE/TIME	MATRIX	# OF CONTAINERS	BTX/TPH	VOLATILES (624)	SEMIVOLATILES (625)	D LIST METALS	TURN AROUND TIME	COMMENTS
Payson MW-4	1/9/98 1530	H20	9					S	

TURN AROUND TIMES
I = Priority I
II = Priority II
III = 5 Day Rush
S = Standard

Special Instructions:
See Attached Sheets
Hold trip blanks unless told otherwise.

Relinquished By: Signature	Date/Time	Received By: Signature	Date/Time
William C. Bragg	1/13/98 724		
PRINT NAME		PRINT NAME	
Relinquished By: Signature	Date/Time	Received By: Signature	Date/Time
PRINT NAME		PRINT NAME	
Dispatched By: Signature	Date/Time	Received for Laboratory By: Julie Trujillo	Date/Time 1/13/98 724
PRINT NAME		PRINT NAME JULIE TR. ILLO	

DAMES & MOORE
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127 South 500 East, Suite 300
Salt Lake City, Utah 84102-1959
801 521 9255 Tel
801 521 0380 Fax
800 432 6375 Tel

April 19, 1999

Mr. Glade J. Robbins
City Engineer
Payson City Corporation
439 West Utah Avenue
Payson, Utah 84651

LETTER REPORT - Monitoring Well Installation and Groundwater Sampling For Payson City Corporation
Dames & Moore Project No. 05440-004-162

Dear Mr. Robbins:

Dames & Moore is pleased to submit a Letter Report to the Payson City Corporation for the installation and initial groundwater sampling of two monitoring wells. This report and work completed on this project was preformed according to terms agreed upon in the Scope of Work presented in the job proposal by Dames & Moore in September 1998.

INTRODUCTION

The Payson City Landfill is located approximately 4 miles west of the city of Payson in Utah County. The site is located on the eastern side of West Mountain in Section 14, Township 9 South and Range 1 East. This report includes the installation and the initial groundwater sampling of monitoring wells MW-5 and MW-6 which are located on the northern side of the landfill property. Both wells are located between a northern access road to the landfill and a chain link fence that marks the property boundary. Wells were placed at locations recommended by Phil Burns of the State of Utah Division of Solid and Hazardous Waste. This report contains drilling logs, groundwater sampling parameters, analytical results, groundwater gradient map, conclusions, and recommendations. Four monitoring wells were installed at the Payson City Landfill prior to the 1998 drilling and well installation. Monitoring wells MW-1 and MW-3 are located on the eastside of the landfill, MW-2 is located to the southwest of the landfill, and MW-4 is located to the south of the landfill. Locations for all monitoring wells are shown on Figure 1.

MONITORING WELL INSTALATION

Monitoring Well-5

Monitoring well MW-5 was drilled to a total depth of 295 feet below ground surface. Drilling was conducted from November 19 through 23, 1998. Subsurface soils encountered were primarily sandy gravel, with some fine to medium sand and some clay. The drilling log with a detailed soil profile is located in Appendix A. Monitoring well construction was completed November 23 through November 30, 1998. The monitoring well was completed as a four-inch well with 50 feet of screen. A *Master-Flo* bladder pump that was installed in the well has not been tested due to a malfunction in the control box owned by Payson City Corporation. During drilling, groundwater was estimated at about 260 feet below ground surface. The initial groundwater elevation taken December 15, 1998 before well development was reported as 263.11 feet below the top of the PVC or about 260 below ground surface. A groundwater elevation taken February 17, 1999 was report at 264.05 feet below top of PVC. The State of Utah, Department of Natural Resources, Division of Water Rights approved the drilling and installation of the monitoring well. Both MW-5 and MW-6 have been assigned the number Monitor well #: 98-51-001-M.

Monitoring Well-6

Monitoring well MW-6 was drilled to a total depth of 335 feet below ground surface. Drilling was completed from November 30 through December 7, 1998. Subsurface soils encountered were primarily sandy gravel, with some fine to medium sand and some clay. The drilling log with a detailed soil profile is located in Appendix A. Monitoring well construction was completed December 7 through December 9, 1998. The monitoring well was completed as a four-inch well with 50 feet of screen. A *Master-Flo* bladder pump that was installed in the well has not been tested due to a malfunction in the control box owned by Payson City Corporation. During drilling, groundwater was estimated at about 290 feet below ground surface. The initial groundwater elevation was taken December 15, 1998 before well development and was reported as 295.21 feet below the top of the PVC or about 292 feet below ground surface. A groundwater elevation taken February 17, 1999 reports the elevation at 296.00 feet below top of PVC. The State of Utah, Department of Natural Resources, Division of Water Rights approved the drilling and installation of the monitoring well. Both MW-5 and MW-6 have been assigned the number Monitor well #: 98-51-001-M.

GROUNDWATER SAMPLING

Monitoring wells MW-5 and MW-6 were sampled on December 15, 1998 after well development was completed. The monitoring wells were developed using a bailer attached to a wire line on a boom truck. The bailer, wire line and the bed of the truck were decontaminated before well development. Groundwater parameters including pH, temperature and specific conductivity were collected and are presented in Tables 1 and 2. Monitoring Well MW-5 bailed dry after removing about 120 gallons of groundwater and recharged in about an hour. Monitoring Well MW-6 bailed dry after removing about 100 gallons of groundwater and recharged in about an hour and a half. Well development was considered completed after the groundwater was relatively free of sediment and the groundwater parameters had stabilized. Groundwater samples were collected after well development in laboratory provided jars and transported on ice to American West Analytical Laboratories of Salt Lake City, Utah, for analysis. The groundwater was analyzed for volatile organic compounds (VOC), inorganic compounds, and total metals.

GROUNDWATER ANALYTICAL RESULTS

Monitoring Well-5

Complete laboratory reports are located in Appendix B. Laboratory results above the laboratory detection limits are presented in Tables 3 through 5. Summaries of VOCs, inorganic compounds, and total metals are below.

Volatile Organic Compounds: A total of 78 VOC compounds were analyzed with and four compounds had concentrations above the laboratory reporting limits. Compounds detected include 1,1-Dichloroethane, Cis-1,2-Dichloroethane, Tetrachloroethene, and 1,1,1-Trichloroethene. All four of the compounds are above the laboratory limits but below the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. Compounds above the laboratory reporting limits are presented in Table 3.

Inorganic Compounds: A total of nine inorganic compounds were analyzed and seven compounds had detected amounts above the laboratory reporting limits. Compounds detected include bicarbonate (as CaCO3), chloride, nitrate (as N), pH, sulfate, total dissolved solids (TDS), and total

organic carbon (TOC). The compounds detected are above the laboratory limits but are either not listed, below, or in the acceptable range presented in the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. The groundwater pH collected in the field at the time of sampling was 6.75 and was reported at 7.5 by American West. Both are with in the acceptable range of 6.5-8.5 range as defined by the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. Compounds above the laboratory reporting limits are presented in Table 4.

Total Metals: A total of 22 metals were analyzed with 15 metals having concentrations above the laboratory reporting limits. All metals with detectable concentrations were either not listed or below the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. Metals above the laboratory reporting limits are presented in Table 5.

Monitoring Well-6

Complete laboratory reports are located in Appendix B. Laboratory results above the laboratory detection limits are presented in tables 6 through 8. Summaries of VOCs, inorganic compounds, and total metals are below.

Volatile Organic Compounds: A total of 78 VOC compounds were analyzed with two compounds having concentrations above the laboratory reporting limits. Compounds detected include Cis-1,2-Dichloroethane and Tetrachloroethene. Both are above the laboratory limits but below the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. Compounds above the laboratory reporting limits are presented in Table 6.

Inorganic Compounds: A total of 9 inorganic compounds were analyzed with seven compounds having detected amounts above the laboratory reporting limits. Compounds detected include bicarbonate (as CaCO3), chloride, nitrate (as N), pH, sulfate, total dissolved solids (TDS), and total organic carbon (TOC). The compounds detected are above the laboratory limits but were either not listed, below, or in the acceptable range presented in the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. The groundwater pH collected in the field at the time of sampling was 6.49 and was reported at 7.1 by American West. Both are at or within the acceptable range of 6.5-8.5 range as defined by the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320.

Compounds above the laboratory reporting limits are presented in Table 7.

Total Metals: A total of 22 metals were analyzed with 14 metals having concentrations above the laboratory reporting limits. All metals with detectable concentrations were either not listed or below the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. Metals above the laboratory reporting limits are presented in Table 8.

GROUNDWATER GRADIENT

The Payson City Corporation has provided Dames & Moore groundwater elevations from five rounds of data collected from September 1996 through February 1999. Depth to groundwater, groundwater elevations, and top of well casing date are presented in Table 9. Based on the first four rounds of measurements, the groundwater gradient is inferred to be to the northwest. The most current data

was collected on February 1999, which includes measurements collected from MW-5 and MW-6. A groundwater flow gradient is impossible to determine given the new well survey data. If MW-5 and MW-6 are not included, the inferred groundwater flow direction is to the northwest. Analytical data supports the inferred north to northwest trending gradient with concentrations of some constituents reported in wells MW-5 and MW-6. A groundwater contour map based on groundwater elevations measured on February 17, 1999 is presented as Figure 2.

CONCLUSIONS

Based on the interpretation of laboratory analytical results some compounds from the landfill appear to have migrated down to the groundwater table. The concentrations for this sampling event are below the groundwater quality standards under the Solid Waste Permitting and Management Rules R315-301 through 320. The presence of the compounds, primarily the VOCs, may indicate that some constituents from the landfill have leached through the soil to the groundwater.

The inferred groundwater gradient is north to northwest. The presence of VOC compounds above the laboratory limits in monitoring wells MW-5 and MW-6 suggests that the groundwater flow is to the northwest.

RECOMMENDATIONS

The groundwater gradient has been determined to be to the northwest, making MW-5 and MW-6 down gradient wells and MW-3 and MW-4 upgradient wells. According to the guidelines presented in state of Utah Solid Waste Permitting and Management Rules, R315-301 through 320, down gradient wells are to be sampled four times during the first year and upgradient wells are to be sampled 8 times during the first year to establish background levels for the wells. Additional groundwater monitoring and new survey data may provide a more accurate calculation of the groundwater flow gradient.

Groundwater elevations for all monitoring wells (MW-1 through MW-6) should be collected for each sampling event. Wells that are not sampled should be measured each sampling event. This data will be used to prepare a groundwater gradient map checking on the direction of the flow gradient to note any changes. It is also recommended that a new survey be completed for all monitoring wells to check elevations that have been used to determine the direction of the flow gradient. The new survey data should be completed on all monitoring wells during the same survey to insure accuracy.

If you have you have any questions or comments, please contact either Bill Bragdon or Lori Robison at 801-521-9255. If Dames & Moore can provide any additional services please contact us.

Sincerely,
DAMES & MOORE

William C. Bragdon
Project Geologist

Lori C. Robison, P.G.
Senior Hydrogeologist

Attachments:

Figure 1	Site Location Map
Figure 2	Ground Water Contour Map
Table 1	Groundwater Sampling Observations
Table 2	Summary of Ground Water Elevations
Table 3	Volatile Organic Compounds MW-5
Table 4	Inorganic Compounds MW-5
Table 5	Total Metals MW-5
Table 6	Volatile Organic Compounds MW-6
Table 7	Inorganic Compounds MW-6
Table 8	Total Metals MW-6
Table 9	Groundwater Elevation Data
Appendix A	Soil Boring Logs
Appendix B	Laboratory Data Analysis

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FIGURE 1
SITE MAP

LOCATION Payson City Landfil East of Payson, Utah	DRAWN BY William Bragdon, Project Geologist APPROVED BY Lori C. Robison, P.G. Senior Hydrogeologist	1 INCH =250 FEET SCALE MW = Monitoring Well Location

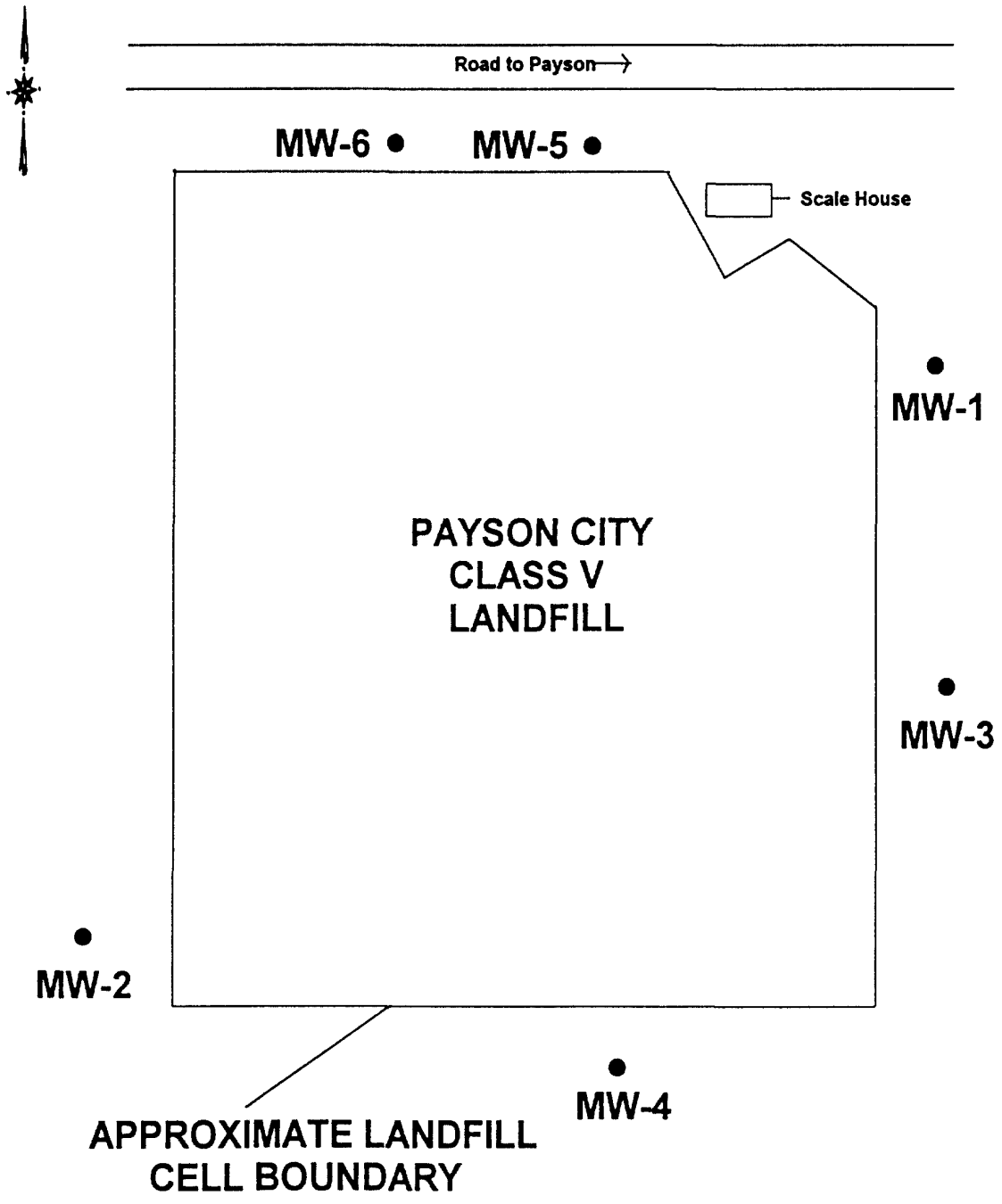

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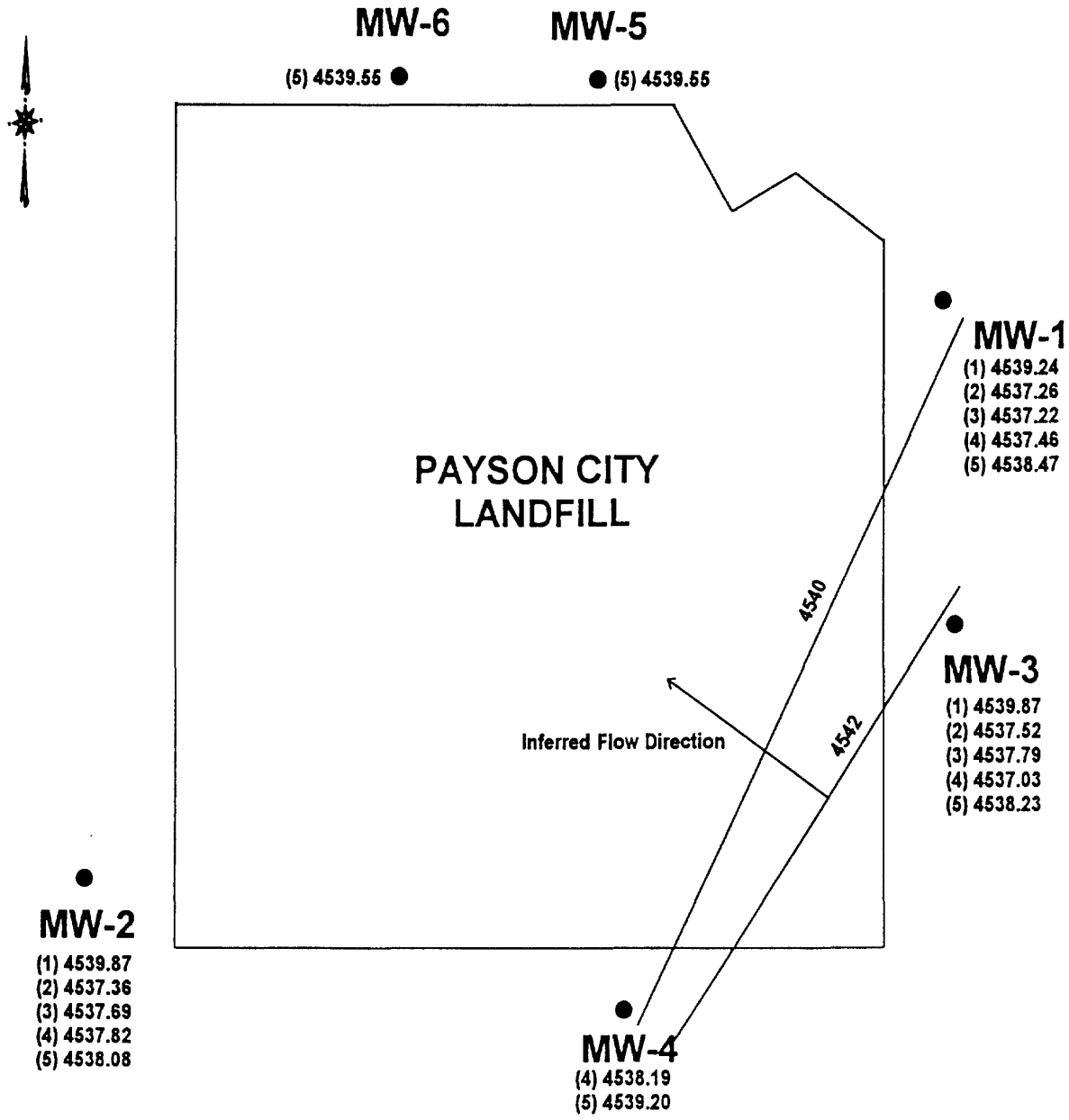
FIGURE 2
GROUNDWATER CONTOUR MAP

LOCATION Payson City Landfil East of Payson, Utah	DRAWN BY William Bragdon, Project Geologist APPROVED BY Lori C. Robison, P.G. Senior Hydrogeologist	1 INCH =250 FEET SCALE



(1) = Data Collected September 10, 1996
(2) = Data Collected February 18, 1997
(3) = Data Collected April 18, 1997
(4) = Data Collected February 10, 1998
(5) = Data Collected February 17, 1999

NOTE:
Inferred Flow Direction based on February 17, 1999 data using MW-1, MW-2, MW-3 and MW-4.

Payson City Corporation Landfill
Ground Water Monitoring MW-6
January 12, 1999

TABLE 1
Groundwater Sampling Observations MW-5

DATE SAMPLED	PURGED VOLUME	pH	TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (mS/cm)	OBSERVATIONS
12/15/98	1 Bailer	6.89	12.4	1.99	Opaque, light reddish brown, trace sediment, no odor
	50 gallons	7.11	13.0	1.96	Opaque, light reddish brown, trace sediment, no odor
	100 gallons	6.82	12.8	1.64	Opaque, light reddish brown, trace sediment, no odor
	120 gallons	6.75	14.4	1.57	Cloudy, light reddish brown, trace to no sediment, no odor

TABLE 2
Groundwater Sampling Observations MW-6

DATE SAMPLED	PURGED VOLUME	pH	TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (mS/cm)	OBSERVATIONS
12/15/98	1 Bailer	7.00	13.4	1.31	Opaque, light reddish brown, trace sediment, no odor
	50 gallons	6.70	14.1	1.26	Opaque, light reddish brown, trace sediment, no odor
	85 gallons	6.50	13.5	1.56	Opaque, light reddish brown, trace sediment, no odor
	100 gallons	6.49	13.2	1.44	Cloudy, light reddish brown, trace to no sediment, no odor

Payson City Corporation Landfill
Ground Water Monitoring MW-6
January 12, 1999

TABLE 1
Groundwater Sampling Observations MW-5

DATE SAMPLED	PURGED VOLUME	pH	TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (mS/cm)	OBSERVATIONS
12/15/98	1 Bailer	6.89	12.4	1.99	Opaque, light reddish brown, trace sediment, no odor
	50 gallons	7.11	13.0	1.96	Opaque, light reddish brown, trace sediment, no odor
	100 gallons	6.82	12.8	1.64	Opaque, light reddish brown, trace sediment, no odor
	120 gallons	6.75	14.4	1.57	Cloudy, light reddish brown, trace to no sediment, no odor

TABLE 2
Groundwater Sampling Observations MW-6

DATE SAMPLED	PURGED VOLUME	pH	TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (mS/cm)	OBSERVATIONS
12/15/98	1 Bailer	7.00	13.4	1.31	Opaque, light reddish brown, trace sediment, no odor
	50 gallons	6.70	14.1	1.26	Opaque, light reddish brown, trace sediment, no odor
	85 gallons	6.50	13.5	1.56	Opaque, light reddish brown, trace sediment, no odor
	100 gallons	6.49	13.2	1.44	Cloudy, light reddish brown, trace to no sediment, no odor

TABLE 3
Volatile Organic Compounds MW-5

MW-5	Compound	Reporting Limit (µg/L)	Amount Detected (µg/L)	Groundwater Quality Standards (µg/L)
	1,1-Dichloroethane	2.0	**2.4**	**7.0**
	Cis-1,2-Dichloroethane	2.0	**2.4**	**70.0**
	Tetrachloroethene	2.0	**3.9**	**5.0**
	1,1,1-Trichloroethene	2.0	**2.3**	**200.0**

TABLE 4
Inorganic Compounds MW-5

MW-5	Compound	Reporting Limit (µg/L)	Amount Detected (µg/L)	Groundwater Quality Standards (µg/L)
	Bicarbonate (as CaCO3)	10	**480**	**NA**
	Chloride	0.5	**170**	**NA**
	Nitrate (as N)	0.01	**10**	**10,000**
	PH	-	**7.5**	**6.5-8.5**
	Sulfate	5.0	**180**	**NA**
	TDS	1.0	**1100**	**NA**
	TOC	1.0	**2.6**	**NA**

TABLE 5
Total Metals MW-5

MW-5	Compound	Reporting Limit (mg/L)	Amount Detected (mg/L)	Groundwater Quality Standards (mg/L)
	Arsenic	0.005	**0.018**	**0.05**
	Barium	0.002	**0.16**	**2.0**
	Beryllium	0.001	**0.0020**	**NA**
	Calcium	0.05	**240**	**NA**
	Chromium	0.01	**0.020**	**0.1**
	Copper	0.004	**0.010**	**1.3**
	Iron	0.01	**13**	**NA**
	Lead	0.005	**0.0070**	**0.015**
	Magnesium	0.05	**83**	**NA**
	Manganese	0.005	**0.26**	**NA**
	Nickel	0.005	**0.033**	**NA**
	Potassium (total)	0.1	**17**	**NA**
	Sodium	0.1	**150**	**NA**
	Vanadium	0.005	**0.028**	**NA**
	Zinc	0.005	**0.72**	**5.0**

NA – Not Applicable

TABLE 6
Volatile Organic Compounds MW-6

MW-6	Compound	Reporting Limit (µg/L)	Amount Detected (µg/L)	Groundwater Quality Standards (µg/L)
	Cis-1,2-Dichloroethane	2.0	**6.4**	**70.0**
	Tetrachloroethene	2.0	**4.2**	**5.0**

TABLE 7
Inorganic Compounds MW-6

MW-6	Compound	Reporting Limit (µg/L)	Amount Detected (µg/L)	Groundwater Quality Standards (µg/L)
	Bicarbonate (as CaCO3)	10	**520**	**NA**
	Chloride	0.5	**210**	**NA**
	Nitrate (as N)	0.01	**1.5**	**0.01**
	pH	-	**7.1**	**6.5-8.5**
	Sulfate	5.0	**70**	**NA**
	TDS	1.0	**960**	**NA**
	TOC	1.0	**5.1**	**NA**

TABLE 8
Total Metals MW-6

MW-6	Compound	Reporting Limit (mg/L)	Amount Detected (mg/L)	Groundwater Quality Standards (mg/L)
	Arsenic	0.005	**0.017**	**0.05**
	Barium	0.002	**0.20**	**2.0**
	Calcium	0.05	**210**	**NA**
	Chromium	0.01	**0.010**	**0.1**
	Copper	0.004	**0.013**	**1.3**
	Iron	0.01	**10**	**NA**
	Lead	0.005	**0.0060**	**0.015**
	Magnesium	0.05	**71**	**NA**
	Manganese	0.005	**0.50**	**NA**
	Nickel	0.005	**0.015**	**NA**
	Potassium (total)	0.1	**16**	**NA**
	Sodium	0.1	**72**	**NA**
	Vanadium	0.005	**0.016**	**NA**
	Zinc	0.005	**0.72**	**5.0**

NA – Not Applicable

TABLE 9

SUMMARY OF GROUNDWATER ELEVATIONS

WELL No.	TOC* Elevation (feet)	September 10, 1996		February 18, 1997		April 18, 1997		February 10, 1998		February 17, 1999	
		Depth to Water** (feet)	Ground-water Elevation (feet)	Depth to Water** (feet)	Ground-water Elevation (feet)	Depth to Water** (feet)	Ground-water Elevation (feet)	Depth to Water** (feet)	Ground-water Elevation (feet)	Depth to Water** (feet)	Ground-water Elevation (feet)
MW-1	4760.47	221.23	4539.24	223.21	4537.26	223.25	4537.22	223.01	4537.46	222.00	4538.47
MW-2	4944.73	404.72	4539.87	407.37	4537.36	407.04	4537.69	408.91	4535.82	406.65	4538.08
MW-3	4765.38	225.50	4539.87	227.86	4537.52	227.59	4537.79	227.35	4538.03	222.15	4543.23
MW-4	4846.20	NA	NA	NA	NA	NA	NA	308.01	4538.19	307.00	4539.20
MW-5	4803.60	NA	NA	NA	NA	NA	NA	NA	NA	264.05	4539.55
MW-6	4835.55	NA	NA	NA	NA	NA	NA	NA	NA	296.00	4539.55

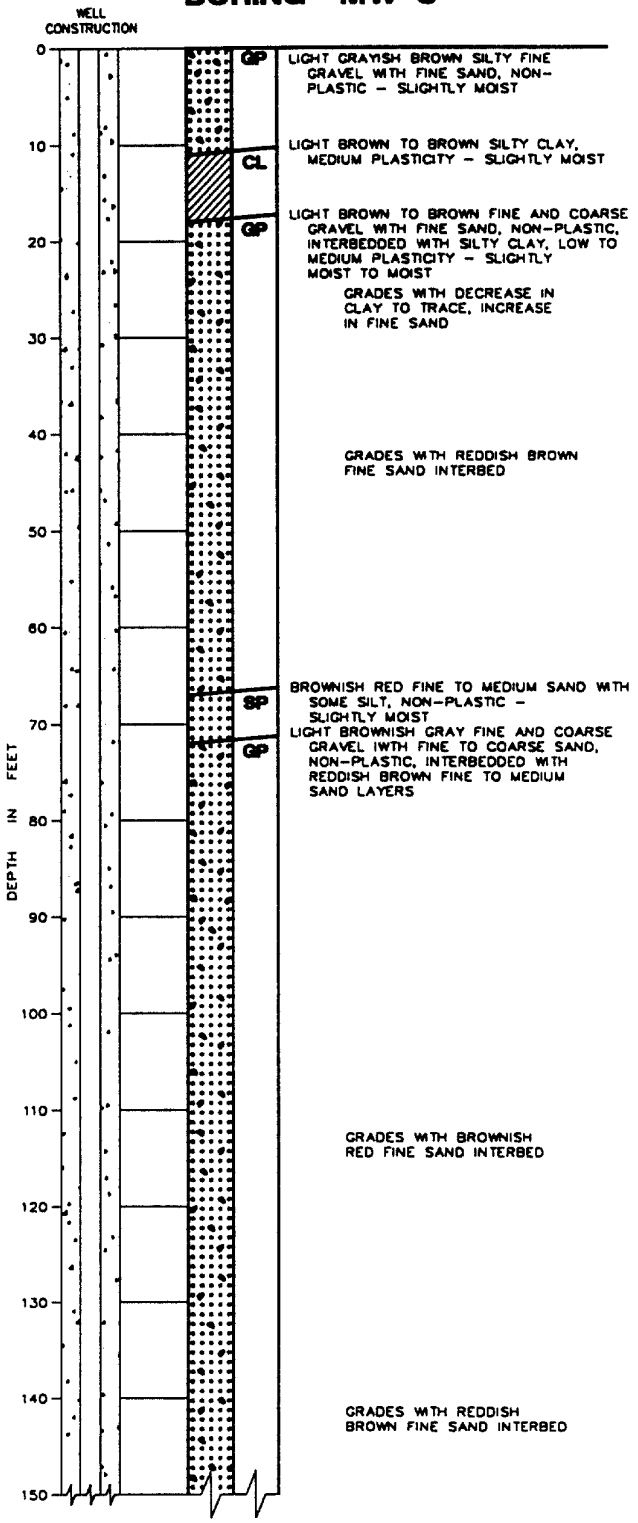
Reference: Data provided by Payson City Lnadfill.

* = Elevation to top of PVC pipe.

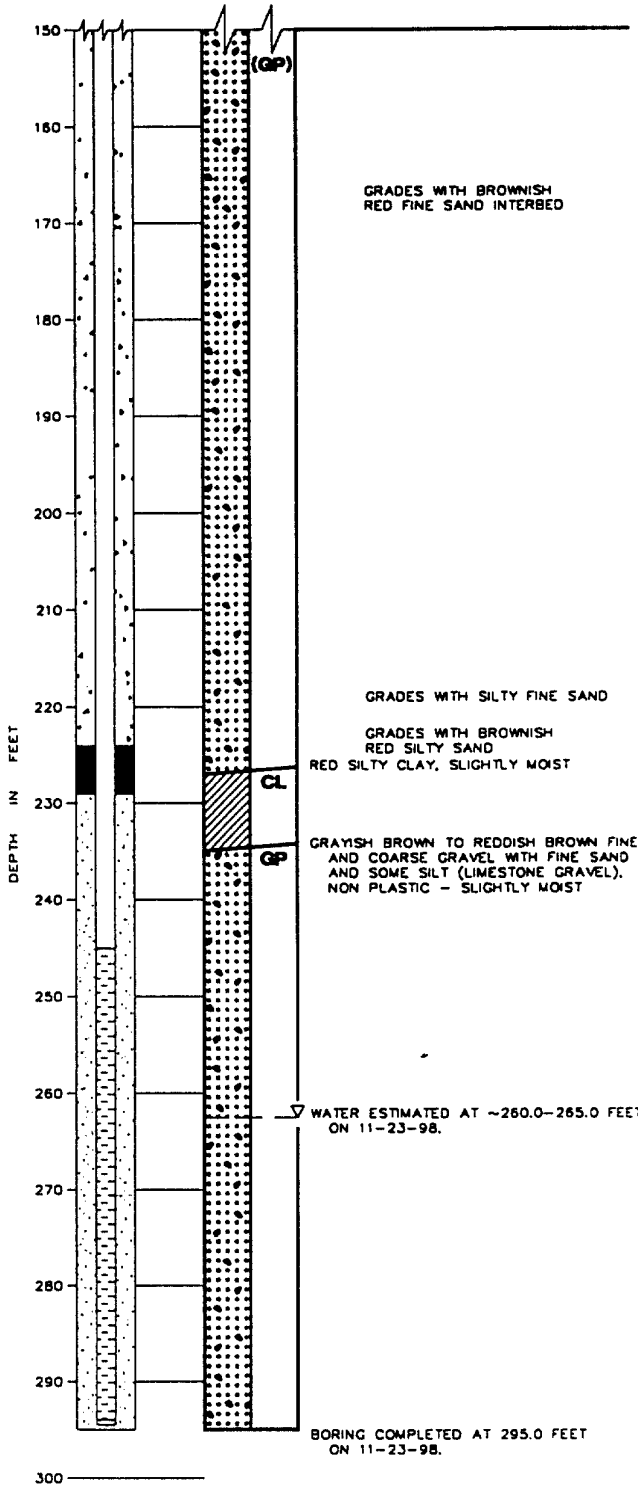
** = Measurement from top of PVC pipe to water.

FILE 05440-005-162 (05440F5A.DWG) BY _____ DATE _____ CHECKED BY _____ DATE _____

BORING MW-5



BORING MW-5 (CONTINUED)



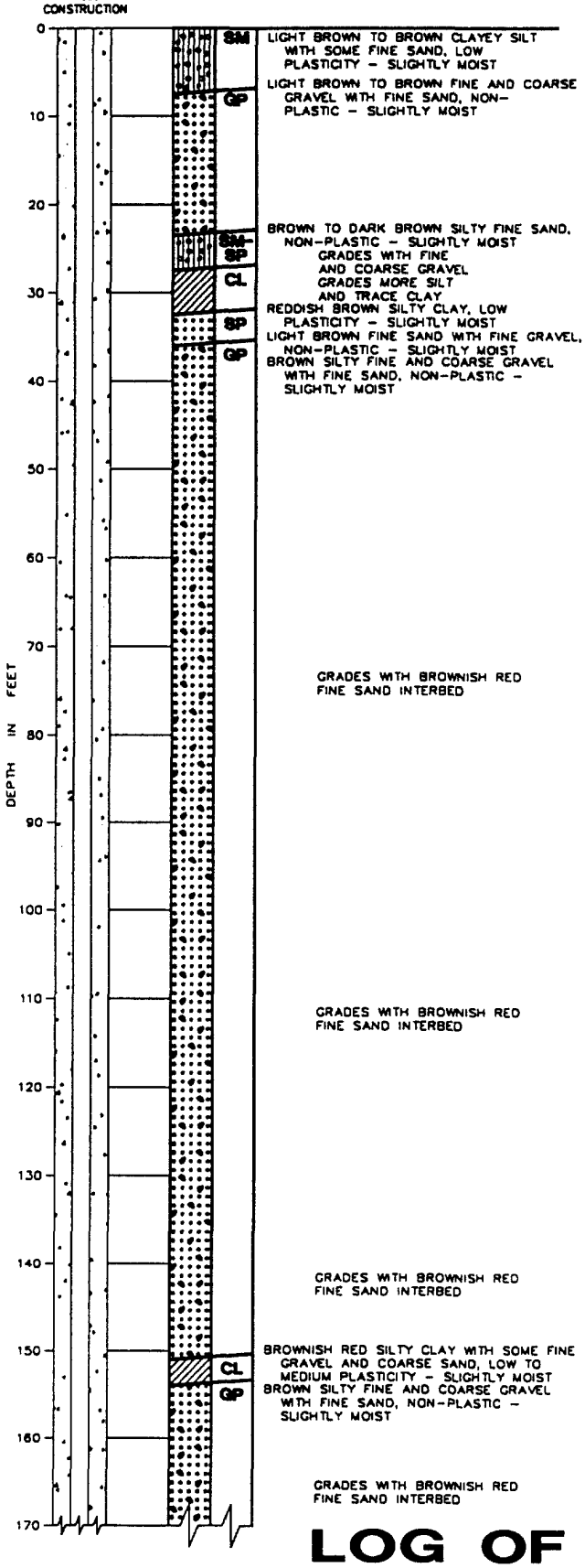
LOG OF BORING

Dames & Moore

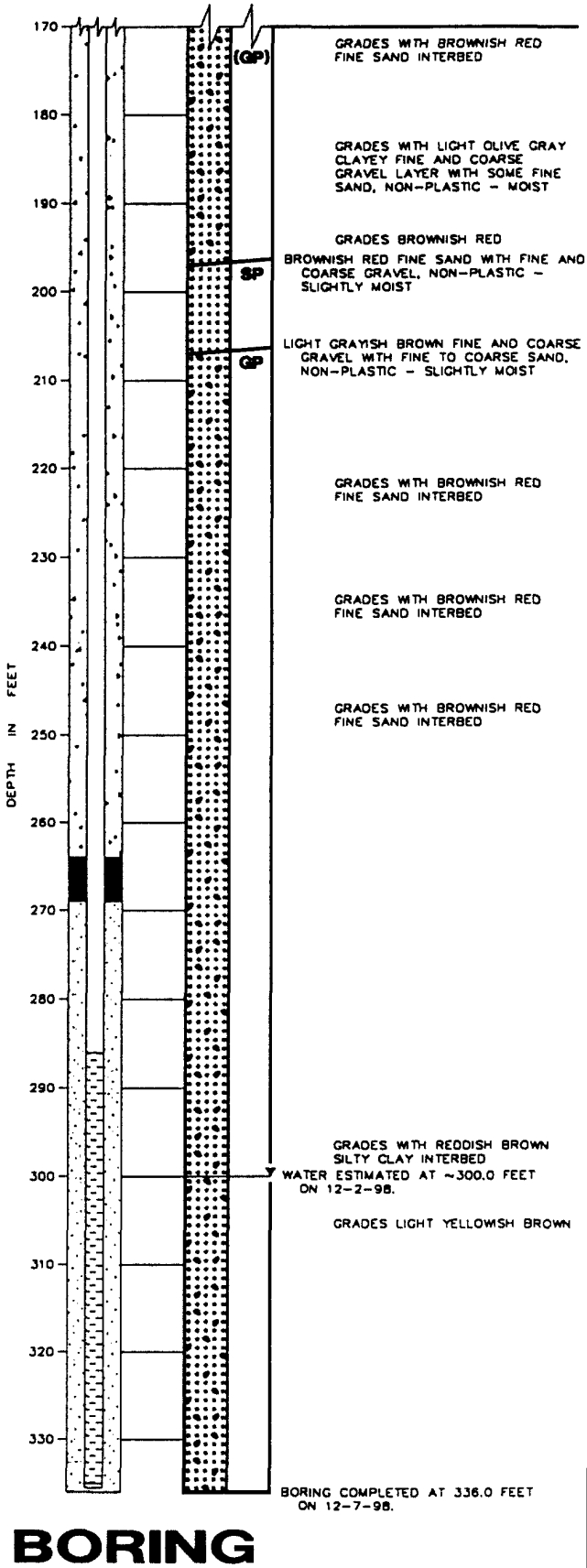
FIGURE 5A

FILE 05440-005-162 (05440F5B.DWG) BY DATE CHECKED BY DATE

BORING MW-6



BORING MW-6 (CONTINUED)



LOG OF BORING

Dames & Moore

FIGURE 5B

INORGANIC ANALYSIS REPORT

Client: Dames & Moore
Date Sampled: December 15, 1998

Contact: Bill Bragdon
Date Received: December 16, 1998

Field Sample ID:
PAYSON CITY LANDFILL/05440-005
MW-5

Lab Sample ID:
L35653-1

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Analytical Results

Units = mg/L

TOTAL METALS	Analysis Date:	Method Used:	Reporting Limit:	Amount Detected:
Antimony	01/04/99	7041	0.005	<0.005
Arsenic	12/23/98	7060A	0.005	**0.018**
Barium	12/21/98	6010B	0.002	**0.16**
Beryllium	12/21/98	6010B	0.001	**0.0020**
Cadmium	12/21/98	6010B	0.004	<0.004
Calcium	12/23/98	6010B	0.05	**240.**
Chromium	12/21/98	6010B	0.01	**0.020**
Cobalt	12/21/98	6010B	0.01	<0.01
Copper	12/21/98	6010B	0.004	**0.010**
Iron	12/21/98	6010B	0.01	**13.**
Lead	01/03/99	7421	0.005	**0.0070**
Magnesium	12/23/98	6010B	0.05	**83.**
Manganese	12/21/98	6010B	0.005	**0.26**
Mercury	12/22/98	7470A	0.001	<0.001
Nickel	12/21/98	6010B	0.005	**0.033**
Potassium	12/21/98	6010B	0.1	**17.**
Selenium	12/23/98	7740	0.005	<0.005
Silver	12/21/98	6010B	0.01	<0.01
Sodium	12/23/98	6010B	0.1	**150.**
Thallium	01/04/99	7841	0.001	<0.001
Vanadium	12/21/98	6010B	0.005	**0.028**
Zinc	12/21/98	6010B	0.005	**0.24**

Released By: _____
Laboratory Supervisor

Report Date: January 12, 1999

ORGANIC ANALYSIS REPORT

Client: Dames & Moore

Contact: Bill Bragdon

Lab Set ID: L35653

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Analysis Requested: Volatile Organics

Analysis Method: EPA SW-846 #8260A/5030A Purge & Trap GC/MS

Date Analyzed: December 28, 1998

Lab Sample ID.: L35653-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10	< 10
Acrolein	10	< 10
Acrylonitrile	10	< 10
Benzene	2	< 2
Bromobenzene	2	< 2
Bromochloromethane	2	< 2
Bromodichloromethane	2	< 2
Bromoform	2	< 2
Bromomethane	5	< 5
Methyl Ethyl Ketone (2-Butanone)	10	< 10
N-Butylbenzene	2	< 2
Sec-Butylbenzene	2	< 2
Tert-Butylbenzene	2	< 2
Carbondisulfide	2	< 2
Carbon tetrachloride	2	< 2
Chlorobenzene	2	< 2
Chloroethane	2	< 2
2-Chloroethyl vinyl ether	10	< 10
Chloroform	2	< 2
Bis(2-Chloroisopropyl)Ether	5	< 5
Chloromethane	5	< 5
O-Chlorotoluene	2	< 2
P-Chlorotoluene	2	< 2
Dibromochloromethane	2	< 2
1,2-Dibromo-3-Chloropropane	2	< 2

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Fax (801) 263-8687

Lab Sample ID.: L35653-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:	Footnotes
1,2-Dibromoethane	2	< 2	
Dibromomethane	2	< 2	
1,2-Dichlorobenzene	2	< 2	
1,3-Dichlorobenzene	2	< 2	
1,4-Dichlorobenzene	2	< 2	
Dichlorodifluoromethane	2	< 2	
1,1-Dichloroethane	2	< 2	
1,2-Dichloroethane	2	< 2	
1,1-Dichloroethene	2	< 2	
Trans-1,2-Dichloroethene	2	< 2	
Cis-1,2-Dichloroethene	2	< 2	
1,2-Dichloropropane	2	< 2	
1,3-Dichloropropane	2	< 2	
2,2-Dichloropropane	2	< 2	
1,1-Dichloro-1-Propene	2	< 2	
Cis-1,3-Dichloropropene	2	< 2	
Trans-1,3-Dichloropropene	2	< 2	
1,4-Dioxane	2	< 2	
Ethyl Acetate	5	< 5	
Ethyl Ether	5	< 5	
Ethylbenzene	2	< 2	
Hexachlorobutadiene	2	< 2	
2-Hexanone	5	< 5	
Isopropylbenzene(Cumene)	2	< 2	
Isopropyltoluene	2	< 2	
Methylene Chloride	2	< 2	
4-Methyl-2-Pentanone	5	< 5	
Naphthalene	4	< 4	
N-Propylbenzene	2	< 2	
Styrene	2	< 2	
1,1,1,2-Tetrachloroethane	2	< 2	
1,1,2,2-Tetrachloroethane	2	< 2	
Tetrachloroethene	2	< 2	
Toluene	2	< 2	
1,2,3-Trichlorobenzene	2	< 2	

Lab Sample ID.: L35653-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

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463 West 3600 South
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Fax (801) 263-8687

Compound:	Reporting Limit:	Amount Detected:	Footnotes
1,2,4-Trichlorobenzene	2	< 2	
1,1,1-Trichloroethane	2	< 2	
1,1,2-Trichloroethane	2	< 2	
Trichloroethene	2	< 2	
Fluorotrichloromethane	2	< 2	
1,2,3-Trichloropropane	2	< 2	
1,1,2-Trichlorotrifluoroethane	2	< 2	
1,2,3-Trimethylbenzene	2	< 2	
1,2,4-Trimethylbenzene	2	< 2	
1,3,5-Trimethylbenzene	2	< 2	
Vinyl Acetate	5	< 5	
Vinyl Chloride	1	< 1	
O-Xylene	2	< 2	
M+P-Xylene	2	< 2	
Iodomethane	5	< 5	
Methyl Tert-Butyl Ether	2	< 2	
2-Nitropropane	10	< 10	
Trans-1,4-Dichloro-2-Butene	10	< 10	

Surrogate Q. C.	%Recovery	QC Limits
1,2-Dichloroethane-d4	96.3%	55 to 146
Toluene-d8	79.4%	52 to 141
4-Bromofluorobenzene	93.4%	76 to 142

FootNotes:

E Estimated Value. The result exceeded the range of the calibration curve.

T Trace Value. The result is below the detection limit.

B Compound was detected in the method blank.

Released by: _____
Laboratory Supervisor

ORGANIC ANALYSIS REPORT

Client: Dames & Moore

Contact: Bill Bragdon

Lab Set ID: L35653

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Analysis Requested:
Volatile Organics

Analysis Method:
EPA SW-846 #8260A/5030A
Purge & Trap GC/MS

Date Analyzed:
December 31, 1998

Lab Sample ID.:
L35653-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10	< 10
Acrolein	10	< 10
Acrylonitrile	10	< 10
Benzene	2	< 2
Bromobenzene	2	< 2
Bromochloromethane	2	< 2
Bromodichloromethane	2	< 2
Bromoform	2	< 2
Bromomethane	5	< 5
Methyl Ethyl Ketone (2-Butanone)	10	< 10
N-Butylbenzene	2	< 2
Sec-Butylbenzene	2	< 2
Tert-Butylbenzene	2	< 2
Carbondisulfide	2	< 2
Carbon tetrachloride	2	< 2
Chlorobenzene	2	< 2
Chloroethane	2	< 2
2-Chloroethyl vinyl ether	10	< 10
Chloroform	2	< 2
Bis(2-Chloroisopropyl)Ether	5	< 5
Chloromethane	5	< 5
O-Chlorotoluene	2	< 2
P-Chlorotoluene	2	< 2
Dibromochloromethane	2	< 2
1,2-Dibromo-3-Chloropropane	2	< 2

Lab Sample ID.: L35653-Method Blank

Analytical Results

VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
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Compound:	Reporting Limit:	Amount Detected:	Footnotes
1,2-Dibromoethane	2	< 2	
Dibromomethane	2	< 2	
1,2-Dichlorobenzene	2	< 2	
1,3-Dichlorobenzene	2	< 2	
1,4-Dichlorobenzene	2	< 2	
Dichlorodifluoromethane	2	< 2	
1,1-Dichloroethane	2	< 2	
1,2-Dichloroethane	2	< 2	
1,1-Dichloroethene	2	< 2	
Trans-1,2-Dichloroethene	2	< 2	
Cis-1,2-Dichloroethene	2	< 2	
1,2-Dichloropropane	2	< 2	
1,3-Dichloropropane	2	< 2	
2,2-Dichloropropane	2	< 2	
1,1-Dichloro-1-Propene	2	< 2	
Cis-1,3-Dichloropropene	2	< 2	
Trans-1,3-Dichloropropene	2	< 2	
1,4-Dioxane	2	< 2	
Ethyl Acetate	5	< 5	
Ethyl Ether	5	< 5	
Ethylbenzene	2	< 2	
Hexachlorobutadiene	2	< 2	
2-Hexanone	5	< 5	
Isopropylbenzene(Cumene)	2	< 2	
Isopropyltoluene	2	< 2	
Methylene Chloride	2	< 2	
4-Methyl-2-Pentanone	5	< 5	
Naphthalene	4	< 4	
N-Propylbenzene	2	< 2	
Styrene	2	< 2	
1,1,1,2-Tetrachloroethane	2	< 2	
1,1,2,2-Tetrachloroethane	2	< 2	
Tetrachloroethene	2	< 2	
Toluene	2	< 2	
1,2,3-Trichlorobenzene	2	< 2	

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Salt Lake City, Utah 84115
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Toll Free (888) 263-8686
Fax (801) 263-8687

Lab Sample ID.: L35653-Method Blank

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:	Footnotes
1,2,4-Trichlorobenzene	2	< 2	
1,1,1-Trichloroethane	2	< 2	
1,1,2-Trichloroethane	2	< 2	
Trichloroethene	2	< 2	
Fluorotrichloromethane	2	< 2	
1,2,3-Trichloropropane	2	< 2	
1,1,2-Trichlorotrifluoroethane	2	< 2	
1,2,3-Trimethylbenzene	2	< 2	
1,2,4-Trimethylbenzene	2	< 2	
1,3,5-Trimethylbenzene	2	< 2	
Vinyl Acetate	5	< 5	
Vinyl Chloride	1	< 1	
O-Xylene	2	< 2	
M+P-Xylene	2	< 2	
Iodomethane	5	< 5	
Methyl Tert-Butyl Ether	2	< 2	
2-Nitropropane	10	< 10	
Trans-1,4-Dichloro-2-Butene	10	< 10	

Surrogate Q. C.	%Recovery	QC Limits
1,2-Dichloroethane-d4	102.9%	55 to 146
Toluene-d8	80.8%	52 to 141
4-Bromofluorobenzene	87.7%	76 to 142

FootNotes:

E Estimated Value. The result exceeded the range of the calibration curve.

T Trace Value. The result is below the detection limit.

B Compound was detected in the method blank.

Released by: _____
Laboratory Supervisor

ORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Dames & Moore
Date Sampled: 12/15/1998
Lab Set ID: L35653

Contact: Bill Bragdon
Date Received: 12/16/1998
Received By: Elona Hayward

Analysis Requested:	Analysis Method:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260A/5030A Purge & Trap GC/MS	December 28, 1998

Lab Sample ID.:	Field Sample ID.:	Dilution Factor
L35653-1	MW-5 PAYSON CITY LANDFILL/05440-005	1.00

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10	< 10
Acrolein	10	< 10
Acrylonitrile	10	< 10
Benzene	2	< 2
Bromobenzene	2	< 2
Bromochloromethane	2	< 2
Bromodichloromethane	2	< 2
Bromoform	2	< 2
Bromomethane	5	< 5
Methyl Ethyl Ketone (2-Butanone)	10	< 10
N-Butylbenzene	2	< 2
Sec-Butylbenzene	2	< 2
Tert-Butylbenzene	2	< 2
Carbondisulfide	2	< 2
Carbon tetrachloride	2	< 2
Chlorobenzene	2	< 2
Chloroethane	2	< 2
2-Chloroethyl vinyl ether	10	< 10
Chloroform	2	< 2
Bis(2-Chloroisopropyl)Ether	5	< 5
Chloromethane	5	< 5
O-Chlorotoluene	2	< 2
P-Chlorotoluene	2	< 2
Dibromochloromethane	2	< 2
1,2-Dibromo-3-Chloropropane	2	< 2

Lab Sample ID.: L35653-1

Field Sample ID.: MW-5
PAYSON CITY LANDFILL/05440-005

Analytical Results

VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah
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(801) 263-8686
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Compound:	Reporting Limit:	Amount Detected:
1,2-Dibromoethane	2	< 2
Dibromomethane	2	< 2
1,2-Dichlorobenzene	2	< 2
1,3-Dichlorobenzene	2	< 2
1,4-Dichlorobenzene	2	< 2
Dichlorodifluoromethane (Freon 12)	2	< 2
1,1-Dichloroethane	2	2.4
1,2-Dichloroethane	2	< 2
1,1-Dichloroethene	2	< 2
Trans-1,2-Dichloroethene	2	< 2
Cis-1,2-Dichloroethene	2	2.4
1,2-Dichloropropane	2	< 2
1,3-Dichloropropane	2	< 2
2,2-Dichloropropane	2	< 2
1,1-Dichloro-1-Propene	2	< 2
Cis-1,3-Dichloropropene	2	< 2
Trans-1,3-Dichloropropene	2	< 2
1,4-Dioxane	2	< 2
Ethyl Acetate	5	< 5
Ethyl Ether	5	< 5
Ethylbenzene	2	< 2
Hexachlorobutadiene	2	< 2
2-Hexanone	5	< 5
Isopropylbenzene(Cumene)	2	< 2
Isopropyltoluene	2	< 2
Methylene Chloride	2	< 2
4-Methyl-2-Pentanone (MIBK)	5	< 5
Naphthalene	4	< 4
N-Propylbenzene	2	< 2
Styrene	2	< 2
1,1,1,2-Tetrachloroethane	2	< 2
1,1,2,2-Tetrachloroethane	2	< 2
Tetrachloroethene	2	3.9
Toluene	2	< 2
1,2,3-Trichlorobenzene	2	< 2

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Fax (801) 263-8687

Lab Sample ID.: L35653-1

Field Sample ID.: MW-5
PAYSON CITY LANDFILL/05440-005

Analytical Results

VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
1,2,4-Trichlorobenzene	2	< 2
1,1,1-Trichloroethane	2	2.3
1,1,2-Trichloroethane	2	< 2
Trichloroethene	2	< 2
Trichlofluoromethane (Freon11)	2	< 2
1,2,3-Trichloropropane	2	< 2
1,1,2-Trichlorotrifluoroethane (Freon 113)	2	< 2
1,2,3-Trimethylbenzene	2	< 2
1,2,4-Trimethylbenzene	2	< 2
1,3,5-Trimethylbenzene	2	< 2
Vinyl Acetate	5	< 5
Vinyl Chloride	1	< 1
O-Xylene	2	< 2
M+P-Xylene	2	< 2
Iodomethane	5	< 5
Methyl Tert-Butyl Ether	2	< 2
2-Nitropropane	10	< 10
Trans-1,4-Dichloro-2-Butene	10	< 10

Surrogate Q. C.	%Recovery	QC Limits
1,2-Dichloroethane-d4	98.9%	55 to 146
Toluene-d8	101.0%	52 to 141
4-Bromofluorobenzene	96.1%	76 to 142

FootNotes:

E Estimated value. The amount exceeds the linear working range of the instrument.

T Trace Value. The result is below the detection limit.

B Compound was detected in the method blank.

Released by: _____
Laboratory Supervisor

ORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah
84115
(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Dames & Moore
Date Sampled: 12/15/1998
Lab Set ID: L35653

Contact: Bill Bragdon
Date Received: 12/16/1998
Received By: Elona Hayward

Analysis Requested:	Analysis Method:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260A/5030A Purge & Trap GC/MS	December 28, 1998

Lab Sample ID.:	Field Sample ID.:	Dilution Factor
L35653-2	MW-6 PAYSON CITY LANDFILL/05440-005	1.00

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10	< 10
Acrolein	10	< 10
Acrylonitrile	10	< 10
Benzene	2	< 2
Bromobenzene	2	< 2
Bromochloromethane	2	< 2
Bromodichloromethane	2	< 2
Bromoform	2	< 2
Bromomethane	5	< 5
Methyl Ethyl Ketone (2-Butanone)	10	< 10
N-Butylbenzene	2	< 2
Sec-Butylbenzene	2	< 2
Tert-Butylbenzene	2	< 2
Carbondisulfide	2	< 2
Carbon tetrachloride	2	< 2
Chlorobenzene	2	< 2
Chloroethane	2	< 2
2-Chloroethyl vinyl ether	10	< 10
Chloroform	2	< 2
Bis(2-Chloroisopropyl)Ether	5	< 5
Chloromethane	5	< 5
O-Chlorotoluene	2	< 2
P-Chlorotoluene	2	< 2
Dibromochloromethane	2	< 2
1,2-Dibromo-3-Chloropropane	2	< 2

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Lab Sample ID.: L35653-2

Field Sample ID.: MW-6
PAYSON CITY LANDFILL/05440-005

Analytical Results

VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
1,2-Dibromoethane	2	< 2
Dibromomethane	2	< 2
1,2-Dichlorobenzene	2	< 2
1,3-Dichlorobenzene	2	< 2
1,4-Dichlorobenzene	2	< 2
Dichlorodifluoromethane (Freon 12)	2	< 2
1,1-Dichloroethane	2	< 2
1,2-Dichloroethane	2	< 2
1,1-Dichloroethene	2	< 2
Trans-1,2-Dichloroethene	2	< 2
Cis-1,2-Dichloroethene	2	6.4
1,2-Dichloropropane	2	< 2
1,3-Dichloropropane	2	< 2
2,2-Dichloropropane	2	< 2
1,1-Dichloro-1-Propene	2	< 2
Cis-1,3-Dichloropropene	2	< 2
Trans-1,3-Dichloropropene	2	< 2
1,4-Dioxane	2	< 2
Ethyl Acetate	5	< 5
Ethyl Ether	5	< 5
Ethylbenzene	2	< 2
Hexachlorobutadiene	2	< 2
2-Hexanone	5	< 5
Isopropylbenzene(Cumene)	2	< 2
Isopropyltoluene	2	< 2
Methylene Chloride	2	< 2
4-Methyl-2-Pentanone (MIBK)	5	< 5
Naphthalene	4	< 4
N-Propylbenzene	2	< 2
Styrene	2	< 2
1,1,1,2-Tetrachloroethane	2	< 2
1,1,2,2-Tetrachloroethane	2	< 2
Tetrachloroethene	2	4.2
Toluene	2	< 2
1,2,3-Trichlorobenzene	2	< 2

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Lab Sample ID.: L35653-2

Field Sample ID.: MW-6
PAYSON CITY LANDFILL/05440-005

Analytical Results

VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
1,2,4-Trichlorobenzene	2	< 2
1,1,1-Trichloroethane	2	< 2
1,1,2-Trichloroethane	2	< 2
Trichloroethene	2	< 2
Trichlofluoromethane (Freon11)	2	< 2
1,2,3-Trichloropropane	2	< 2
1,1,2-Trichlorotrifluoroethane (Freon 113)	2	< 2
1,2,3-Trimethylbenzene	2	< 2
1,2,4-Trimethylbenzene	2	< 2
1,3,5-Trimethylbenzene	2	< 2
Vinyl Acetate	5	< 5
Vinyl Chloride	1	< 1
O-Xylene	2	< 2
M+P-Xylene	2	< 2
Iodomethane	5	< 5
Methyl Tert-Butyl Ether	2	< 2
2-Nitropropane	10	< 10
Trans-1,4-Dichloro-2-Butene	10	< 10

Surrogate Q. C.	%Recovery	QC Limits
1,2-Dichloroethane-d4	99.8%	55 to 146
Toluene-d8	102.1%	52 to 141
4-Bromofluorobenzene	94.0%	76 to 142

FootNotes:

E Estimated value. The amount exceeds the linear working range of the instrument.

T Trace Value. The result is below the detection limit.

B Compound was detected in the method blank.

Released by: _____
Laboratory Supervisor

ORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

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Client: Dames & Moore
Date Sampled: 12/15/1998
Lab Set ID: L35653

Contact: Bill Bragdon
Date Received: 12/16/1998
Received By: Elona Hayward

Analysis Requested:	Analysis Method:	Date Analyzed:
Volatile Organics	EPA SW-846 #8260A/5030A Purge & Trap GC/MS	December 31, 1998

Lab Sample ID.:	Field Sample ID.:	Dilution Factor
L35653-3	TRIP BLANK PAYSON CITY LANDFILL/05440-005	1.00

Analytical Results — VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
Acetone	10	< 10
Acrolein	10	< 10
Acrylonitrile	10	< 10
Benzene	2	< 2
Bromobenzene	2	< 2
Bromochloromethane	2	< 2
Bromodichloromethane	2	< 2
Bromoform	2	< 2
Bromomethane	5	< 5
Methyl Ethyl Ketone (2-Butanone)	10	< 10
N-Butylbenzene	2	< 2
Sec-Butylbenzene	2	< 2
Tert-Butylbenzene	2	< 2
Carbondisulfide	2	< 2
Carbon tetrachloride	2	< 2
Chlorobenzene	2	< 2
Chloroethane	2	< 2
2-Chloroethyl vinyl ether	10	< 10
Chloroform	2	< 2
Bis(2-Chloroisopropyl)Ether	5	< 5
Chloromethane	5	< 5
O-Chlorotoluene	2	< 2
P-Chlorotoluene	2	< 2
Dibromochloromethane	2	< 2
1,2-Dibromo-3-Chloropropane	2	< 2

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Lab Sample ID.: L35653-3

Field Sample ID.: TRIP BLANK
PAYSON CITY LANDFILL/05440-005

Analytical Results

VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
1,2-Dibromoethane	2	< 2
Dibromomethane	2	< 2
1,2-Dichlorobenzene	2	< 2
1,3-Dichlorobenzene	2	< 2
1,4-Dichlorobenzene	2	< 2
Dichlorodifluoromethane (Freon 12)	2	< 2
1,1-Dichloroethane	2	< 2
1,2-Dichloroethane	2	< 2
1,1-Dichloroethene	2	< 2
Trans-1,2-Dichloroethene	2	< 2
Cis-1,2-Dichloroethene	2	< 2
1,2-Dichloropropane	2	< 2
1,3-Dichloropropane	2	< 2
2,2-Dichloropropane	2	< 2
1,1-Dichloro-1-Propene	2	< 2
Cis-1,3-Dichloropropene	2	< 2
Trans-1,3-Dichloropropene	2	< 2
1,4-Dioxane	2	< 2
Ethyl Acetate	5	< 5
Ethyl Ether	5	< 5
Ethylbenzene	2	< 2
Hexachlorobutadiene	2	< 2
2-Hexanone	5	< 5
Isopropylbenzene(Cumene)	2	< 2
Isopropyltoluene	2	< 2
Methylene Chloride	2	< 2
4-Methyl-2-Pentanone (MIBK)	5	< 5
Naphthalene	4	< 4
N-Propylbenzene	2	< 2
Styrene	2	< 2
1,1,1,2-Tetrachloroethane	2	< 2
1,1,2,2-Tetrachloroethane	2	< 2
Tetrachloroethene	2	< 2
Toluene	2	< 2
1,2,3-Trichlorobenzene	2	< 2

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Lab Sample ID.: L35653-3

Field Sample ID.: TRIP BLANK
PAYSON CITY LANDFILL/05440-005

Analytical Results

VOLATILE ORGANIC COMPOUNDS

Units = PPB (ug/L)

Compound:	Reporting Limit:	Amount Detected:
1,2,4-Trichlorobenzene	2	< 2
1,1,1-Trichloroethane	2	< 2
1,1,2-Trichloroethane	2	< 2
Trichloroethene	2	< 2
Trichlofluoromethane (Freon11)	2	< 2
1,2,3-Trichloropropane	2	< 2
1,1,2-Trichlorotrifluoroethane (Freon 113)	2	< 2
1,2,3-Trimethylbenzene	2	< 2
1,2,4-Trimethylbenzene	2	< 2
1,3,5-Trimethylbenzene	2	< 2
Vinyl Acetate	5	< 5
Vinyl Chloride	1	< 1
O-Xylene	2	< 2
M+P-Xylene	2	< 2
Iodomethane	5	< 5
Methyl Tert-Butyl Ether	2	< 2
2-Nitropropane	10	< 10
Trans-1,4-Dichloro-2-Butene	10	< 10

Surrogate Q. C.	%Recovery	QC Limits
1,2-Dichloroethane-d4	100.8%	55 to 146
Toluene-d8	89.3%	52 to 141
4-Bromofluorobenzene	79.2%	76 to 142

FootNotes:

E Estimated value. The amount exceeds the linear working range of the instrument.

T Trace Value. The result is below the detection limit.

B Compound was detected in the method blank.

Released by: _____
Laboratory Supervisor

INORGANIC ANALYSIS REPORT

Client: Dames & Moore
Date Sampled: December 15, 1998

Contact: Bill Bragdon
Date Received: December 16, 1998

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Field Sample ID:
PAYSON CITY LANDFILL/05440-005
MW-5

Lab Sample ID:
L35653-1

Analytical Results

Units = mg/L

OTHER CHEMISTRIES	Analysis Date:	Method Used:	Reporting Limit:	Amount Detected:
Ammonia (as N)	12/24/98	4500-NH3 H	0.05	<0.05 *
Bicarbonate (as CaCO3)	12/23/98	2320B	10.	**480.**
Carbonate (as CaCO3)	12/23/98	2320B	10.	<10.
Chloride	12/23/98	4500-Cl B	0.5	**170.**
Nitrate (as N)	12/17/98	4500-NO3 F	0.01	**10.**
pH (pH units)	12/18/98	4500-H		**7.5**
Sulfate	12/23/98	375.4	5.0	**180.**
TDS	12/21/98	2540C	1.0	**1100.**
TOC	12/22/98	5310C	1.0	**2.6**

* pH > 2

Released By: _____
Laboratory Supervisor

Report Date: January 04, 1999

INORGANIC ANALYSIS REPORT

Client: Dames & Moore
Date Sampled: December 15, 1998

Contact: Bill Bragdon
Date Received: December 16, 1998

Field Sample ID:
PAYSON CITY LANDFILL/05440-005
MW-6

Lab Sample ID:
L35653-2

Analytical Results

Units = mg/L

OTHER CHEMISTRIES	Analysis Date:	Method Used:	Reporting Limit:	Amount Detected:
Ammonia (as N)	12/24/98	4500-NH3 H	0.05	<0.05 *
Bicarbonate (as CaCO3)	12/23/98	2320B	10.	**520.**
Carbonate (as CaCO3)	12/23/98	2320B	10.	<10.
Chloride	12/23/98	4500-Cl B	0.5	**210.**
Nitrate (as N)	12/17/98	4500-NO3 F	0.01	**1.5**
pH (pH units)	12/18/98	4500-H		**7.1**
Sulfate	12/23/98	375.4	5.0	**70.**
TDS	12/21/98	2540C	1.0	**960.**
TOC	12/22/98	5310C	1.0	**5.1**

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* pH > 2

Released By: _____
Laboratory Supervisor

Report Date: January 04, 1999

ORGANIC ANALYSIS REPORT

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Salt Lake City, Utah
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Client: Dames & Moore
Lab Sample ID.: L35653

Contact: Bill Bragdon
Received By: Elona Hayward

Analysis Requested:	Method Ref. Number:	Date Extracted:
Dibromochloropropane Ethylene	EPA Method 504 EDB/DBCP by GC/ECD	December 23, 1998

Lab Sample ID.:
L35653-Method Blank

Date Analyzed:
December 24, 1998

Analytical Results — DBCP/EDB

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Dibromochloropropane (DBCP)	0.010	<0.010
Ethylene (EDB)	0.010	<0.010

SURROGATE RECOVERIES

Units = %

Compound:	Recovery:	Acceptable Range:
1, 2-Dibromopropane	118.	60. to 140.

Released by: _____
Laboratory Supervisor

EDB/DBCP Master

Report Date 1/7/99

ORGANIC ANALYSIS REPORT

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Client: Dames & Moore
Date Sampled: December 15, 1998
Lab Sample ID.: L35653

Contact: Bill Bragdon
Date Received: December 16, 1998
Received By: Elona Hayward

Analysis Requested:	Method Ref. Number:	Date Extracted:
Dibromochloropropane Ethylene	EPA Method 504 EDB/DBCP by GC/ECD	December 23, 1998

Lab Sample ID.:	Field Sample ID.:	Date Analyzed:
L35653-1	Payson City Landfill/05440-005 MW-5	December 24, 1998

Analytical Results — DBCP/EDB

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Dibromochloropropane (DBCP)	0.010	<0.010
Ethylene (EDB)	0.010	<0.010

SURROGATE RECOVERIES

Units = %

Compound:	Recovery:	Acceptable Range:
1, 2-Dibromopropane	110.	60. to 140.

Released by: _____
Laboratory Supervisor

EDB/DBCP Master

Report Date 1/7/99

ORGANIC ANALYSIS REPORT

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Client: Dames & Moore
Date Sampled: December 15, 1998
Lab Sample ID.: L35653

Contact: Bill Bragdon
Date Received: December 16, 1998
Received By: Elona Hayward

Analysis Requested:	Method Ref. Number:	Date Extracted:
Dibromochloropropane Ethylene	EPA Method 504 EDB/DBCP by GC/ECD	December 23, 1998

Lab Sample ID.:	Field Sample ID.:	Date Analyzed:
L35653-3	Payson City Landfill/05440-005 Trip Blank	December 24, 1998

Analytical Results — DBCP/EDB

Units = µg/L (ppb)

Compound:	Reporting Limit:	Amount Detected:
Dibromochloropropane (DBCP)	0.010	<0.010
Ethylene (EDB)	0.010	<0.010

SURROGATE RECOVERIES

Units = %

Compound:	Recovery:	Acceptable Range:
1, 2-Dibromopropane	104.	60. to 140.

Released by: _____
Laboratory Supervisor

EDB/DBCP Master — Report Date 1/7/99 — 1 of 1

QUALITY CONTROL REPORT

Client: Dames & Moore
Set ID: L35653

QC Batch ID: 12/28/98
QC Batch Sample ID: L35653-2

Matrix: water

Analyte	Original Concentration	Spike Added	%Spike Recovered	%Dup Recovered	Relative% Difference	%Recovery Limits	RPD Limit
1,1-Dichloroethene	0.0	20	137%	136%	1.0	63 to 150	20
Benzene	0.0	20	90%	89%	1.9	61 to 137	20
Trichloroethene	0.0	20	95%	94%	0.8	67 to 122	20
Toluene	0.0	20	108%	107%	0.9	63 to 127	20
Chlorobenzene	0.0	20	105%	106%	0.6	53 to 145	20

Analyte	%LCS Recovery	%Recovery Limits
1,1-Dichloroethene	130.6%	66 to 158
Benzene	81.9%	75 to 127
Trichloroethene	85.3%	77 to 120
Toluene	86.2%	70 to 123
Chlorobenzene	85.9%	73 to 128

Released by: _____
Laboratory Supervisor

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: L35653

QC Sample #: L35653-1

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Recovery Limits	% LCS Recovery	% LCS Limits
DBCP	ND	0.25	116.	60. to 140.	117.	60. to 140.
EDB	ND	0.25	106.	60. to 140.	110.	60. to 140.

ND= Not Detected.

Released by: _____
Laboratory Supervisor

Report Date 1/7/99

QC III Batch ID Master

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: L35653

QC Sample #: L35653-1

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Sample Dup Recovered	% Difference
TDS	1,080.	1,110.	2.7

Released by: _____
Laboratory Supervisor

Report Date 1/7/99

QC III Master (WC)

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: L35653

QC Sample #: L35653-1

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovery	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Barium	0.16	1.1	97.	95.	1.6	75. to 125.	20.	102.	75. to 125.
Beryllium	0.002	1.1	101.	100.	0.9	75. to 125.	20.	101.	75. to 125.
Cadmium	ND	1.1	92.	91.	1.0	75. to 125.	20.	101.	75. to 125.
Chromium	0.02	1.1	93.	92.	1.0	75. to 125.	20.	100.	75. to 125.
Cobalt	ND	1.1	91.	91.	0.0	75. to 125.	20.	101.	75. to 125.
Copper	0.01	1.1	96.	95.	0.9	75. to 125.	20.	104.	75. to 125.
Iron	13.	1.1	-45. *	-109. *	5.8	75. to 125.	20.	102.	75. to 125.
Manganese	0.26	1.1	93.	92.	0.8	75. to 125.	20.	102.	75. to 125.
Nickel	0.03	1.1	90.	90.	0.0	75. to 125.	20.	101.	75. to 125.
Silver	ND	1.1	40. +	40. +	0.0	75. to 125.	20.	99.	75. to 125.
Vanadium	0.03	1.1	95.	94.	0.9	75. to 125.	20.	100.	75. to 125.
Zinc	0.24	1.1	90.	89.	0.8	75. to 125.	20.	100.	75. to 125.

ND= Not Detected.
* Analyte concentration was too high for spike recovery calculations.
\+ Spike recovery indicates matrix interference. Matrix interference confirmed by interference test. The method is in control as indicated by the laboratory control sample (LCS).

Released by: _____
Laboratory Supervisor

Report Date 1/7/99

QC III Batch ID Master

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: L35653

QC Sample #: L35653-1

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovery	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Mercury	ND	3.3	10.	100.	1.0	80. to 120.	24.	102.	80. to 120.

ND= Not Detected.

Released by: _____
Laboratory Supervisor

Report Date 1/8/99

QC III Batch ID Master

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: L35653

QC Sample #: L35653-1

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Sample Dup Recovered	% Difference
Calcium	240.	240.	0.0
Magnesium	82.	83.	0.0
Sodium	150.	150.	0.0
Potassium	17.	18.	0.0

* The original and duplicate analysis were used to calculate the RPD value.

Released by: _____
Laboratory Supervisor

Report Date 1/7/99

QC III Master (WC)

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: L35653

QC Sample #: L35653-1

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovery	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Arsenic	0.02	0.06	80.	87.	8.4	80. to 120.	20.	92.	85. to 115.
Selenium	ND	0.06	96.	89.	7.6	80. to 120.	20.	112.	85. to 115.
Lead	0.007	0.06	89.	85.	4.5	80. to 120.	20.	102.	85. to 115.
Antimony	ND	0.06	67. *	67. *	0.0	80. to 120.	20.	102.	85. to 115.
Thallium	ND	0.06	107.	109.	1.9	80. to 120.	20.	109.	85. to 115.

ND= Not Detected.

* Spike recovery indicates matrix interference. Matrix interference confirmed by interference test. The method is in control as indicated by the laboratory control sample (LCS).

Released by: _____
Laboratory Supervisor

Report Date 1/8/99

QC III Master (WC)

QUALITY CONTROL REPORT

Client: Dames & Moore
Lab Sample ID.: L35653

QC Sample #: L35653-1

Matrix: Liquid

Quality Control Results

Compound	Original Concentration	Spike Added	% Spike Recovered	% Spike Dup Recovery	Relative % Difference	% Recovery Limits	RPD Limits	% LCS Recovery	% LCS Limits
Nitrate	10.	10.	80.	77.	1.7	76. to 115.	-10. to 10.	93.	90. to 110.
TOC	2.6	400.	92.	98.	-6.3	77. to 127.	-15. to 12.	99.	90. to 110.
Bicarb/Carb	480.	500.	98.	102.	-2.4	89. to 118.	-10. to 10.	100.	90. to 110.
Sulfate	175.	250.	110.	105.	2.7	77. to 127.	-15. to 12.	90.	90. to 110.
Chloride	165.	200.	98.	95.	1.4	90. to 110.	-10. to 10.	99.	90. to 110.
Ammonia	ND	1.0	86.	85.	1.5	65. to 120.	-10. to 10.	101.	90. to 110.

ND= Not Detected.

Released by: _____
Laboratory Supervisor

Report Date 1/12/99

QC III Batch ID Master

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Dec 16 1998, 06:14 pm

Login Number: L35653
Account: DAM245 Dames & Moore
Site : PAYSON CITY LANDFILL/05440-005

QC I II III

Contact: Bill Bragdon

Laboratory Sample Number		Client Sample Number	Method Description		Collect Date	Receive Date	Due PR Date	
L35653-1		MW-5			15-DEC-98	16-DEC-98	30-DEC-98	
Level II QC								
Water	S	AG	Silver	Expires:13-JUN-99				
Water	S	AS	Arsenic	Expires:13-JUN-99				
Water	S	BA	Barium	Expires:13-JUN-99				
Water	S	BE	Beryllium	Expires:13-JUN-99				
Water	P	BI/CARB	Bicarbonate & carbonate					
Water	C	BICARB	Bicarbonate (as CaCO3)	Expires:29-DEC-98				
Water	C	CARB	Carbonate (as CaCO3)	Expires:29-DEC-98				
Water	S	CA	Calcium	Expires:13-JUN-99				
Water	S	CD	Cadmium	Expires:13-JUN-99				
Water	S	CL	Chloride	Expires:12-JAN-99				
Water	S	CO	Cobalt	Expires:13-JUN-99				
Water	S	CR	Chromium	Expires:13-JUN-99				
Water	S	CU	Copper	Expires:13-JUN-99				
Water	S	DIG-MET	Total Metal Digestion	Expires:13-JUN-99	dec 16		1	Contain
Water	S	EDB	EDB DBCP by GC	Expires:12-JAN-99	edb/hall		3	Contain
Water	S	FE	Iron	Expires:13-JUN-99				
Water	S	HG	Mercury	Expires:12-JAN-99				
Water	S	K	Potassium	Expires:13-JUN-99				
Water	S	MG	Magnesium	Expires:13-JUN-99				
Water	S	MN	Manganese	Expires:13-JUN-99				
Water	S	NA	Sodium	Expires:13-JUN-99				
Water	S	NH3	Ammonia (as N)	Expires:12-JAN-99				
Water	S	NI	Nickel	Expires:13-JUN-99				
Water	S	NO3	Nitrate (as N)	Expires:17-DEC-98				
Water	S	PB-GF	Lead	Expires:13-JUN-99				
iter	S	PH	pH	Expires:16-DEC-98				
ter	S	QC II	Level II QC Package					
iter	S	SB-GF	Antimony by graphite furnace	Expires:13-JUN-99				
Water	S	SE	Selenium	Expires:13-JUN-99				
Water	S	SO4	Sulfate	Expires:12-JAN-99				
Water	S	TDS	Total dissolved solids	Expires:22-DEC-98	dec 16		1	Contain
Water	S	TL-GF	Thallium by graphite furnace	Expires:13-JUN-99				
Water	S	TOC	Total Organic Carbon	Expires:12-JAN-99	dec 16		1	Contain
Water	S	V	Vanadium	Expires:13-JUN-99				
Water	S	VOC	Volatile Analysis	Expires:29-DEC-98	voc		3	Contain
Water	S	ZN	Zinc	Expires:13-JUN-99				
L35653-2		MW-6			15-DEC-98	16-DEC-98	30-DEC-98	
Level II QC								
Water	S	AG	Silver	Expires:13-JUN-99				
Water	S	AS	Arsenic	Expires:13-JUN-99				
Water	S	BA	Barium	Expires:13-JUN-99				
Water	S	BE	Beryllium	Expires:13-JUN-99				
Water	P	BI/CARB	Bicarbonate & carbonate					
Water	C	BICARB	Bicarbonate (as CaCO3)	Expires:29-DEC-98				
Water	C	CARB	Carbonate (as CaCO3)	Expires:29-DEC-98				
Water	S	CA	Calcium	Expires:13-JUN-99				
Water	S	CD	Cadmium	Expires:13-JUN-99				
Water	S	CL	Chloride	Expires:12-JAN-99				
Water	S	CO	Cobalt	Expires:13-JUN-99				
Water	S	CR	Chromium	Expires:13-JUN-99				
Water	S	CU	Copper	Expires:13-JUN-99				
Water	S	DIG-MET	Total Metal Digestion	Expires:13-JUN-99	dec 16		1	Contain
Water	S	EDB	EDB DBCP by GC	Expires:12-JAN-99	edb/hall		3	Contain
Water	S	FE	Iron	Expires:13-JUN-99				
Water	S	HG	Mercury	Expires:12-JAN-99				
Water	S	K	Potassium	Expires:13-JUN-99				
Water	S	MG	Magnesium	Expires:13-JUN-99				

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Dec 16 1998, 06:14 pm

Login Number: L35653
Account: DAM245 Dames & Moore
Site : PAYSON CITY LANDFILL/05440-005
Contact: Bill Bragdon

Laboratory Sample Number		Client Sample Number	Method Description	Collect Date	Receive Date	Due PR Date	
Water	S	MN	Manganese	Expires:13-JUN-99			
Water	S	NA	Sodium	Expires:13-JUN-99			
Water	S	NH3	Ammonia (as N)	Expires:12-JAN-99			
Water	S	NI	Nickel	Expires:13-JUN-99			
Water	S	NO3	Nitrate (as N)	Expires:17-DEC-98			
Water	S	PB-GF	Lead	Expires:13-JUN-99			
Water	S	PH	pH	Expires:16-DEC-98			
Water	S	QC II	Level II QC Package				
Water	S	SB-GF	Antimony by graphite furnace	Expires:13-JUN-99			
Water	S	SE	Selenium	Expires:13-JUN-99			
Water	S	SO4	Sulfate	Expires:12-JAN-99			
Water	S	TDS	Total dissolved solids	Expires:22-DEC-98	dec 16		1 Contain
Water	S	TL-GF	Thallium by graphite furnace	Expires:13-JUN-99			
Water	S	TOC	Total Organic Carbon	Expires:12-JAN-99	dec 16		1 Contain
Water	S	V	Vanadium	Expires:13-JUN-99			
Water	S	VOC	Volatile Analysis	Expires:29-DEC-98	voc		3 Contain
Water	S	ZN	Zinc	Expires:13-JUN-99			
L35653-3		TRIP BLANK		15-DEC-98	16-DEC-98	30-DEC-98	
Level II QC							
Water	S	EDB	EDB DBCP by GC	Expires:12-JAN-99	edb/hall		2 Contain
Water	S	QC II	Level II QC Package				
Water	S	VOC	Volatile Analysis	Expires:29-DEC-98	voc		2 Contain

Signature: _____

Date: _____

Client Dam / Emoore

Address 127 South 500 East #300

Salt Lake City (City) Utah (State) 84102 (Zip)

Phone/Fax 801-521-9255/0380

Contact Bill Brasdon

Project Name Payson City Landfill

Project Number/P.O.# 05440-005

AMERICAN WEST ANALYTICAL LABORATORIES

Chain Of Custody Record/Lab Work Request

463 West 3600 South, SLC, Utah 84115

(801) 263-8686 Fax (801) 263-8687

Lab Sample Set # - 1653

Page _____ of _____

Circle One:

TAT I II III S

LEVEL of QC I II II IV

Lab ID No. (Lab Only)	Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	See Attached Sheets										COMMENTS
	MW-5	12/15/98 1345	W	9	X										
	MW-6	12/15/98 1540	W	9	X										

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature _____

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

Relinquished By: *Signature* William C. Brasdon — Date/Time 12/16/98 1634

PRINT NAME

Received By: *Signature* Elvira Hayward — Date/Time 12-16-98 1634

PRINT NAME Elvira Hayward

Relinquished By: *Signature* — Date/Time

PRINT NAME

Received By: *Signature* — Date/Time

Special Instructions: